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UNITED STATES DEPARTMENT OF AGRICULTURE
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RESEARCH PRACTICES AND PROBLEMS OF FARMERS' REGIONAL ASSOCIATIONS

By

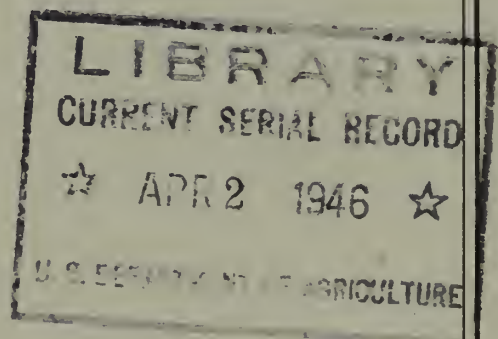
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COOPERATIVE RESEARCH AND SERVICE DIVISION

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The Cooperative Research and Service Division conducts research studies and service activities relating to problems of management, organization, policies, merchandising, sales, costs, competition, and membership arising in connection with the cooperative marketing of agricultural products and the cooperative purchase of farm supplies and services; publishes the results of such studies; confers and advises with officials of farmers' cooperative associations; and cooperates with educational agencies, cooperative associations, and others in the dissemination of information relating to cooperative principles and practices.



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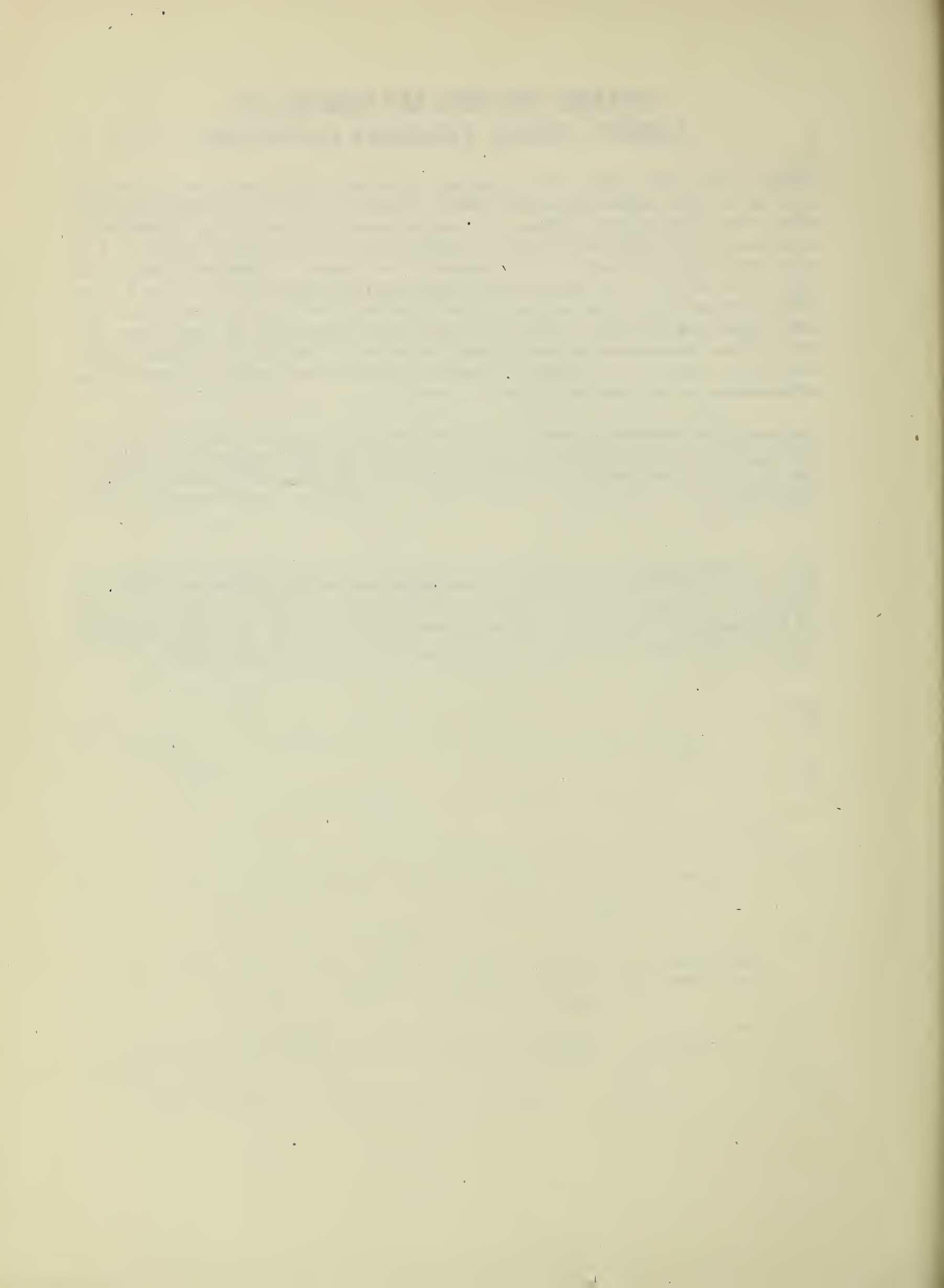
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RESEARCH PRACTICES AND PROBLEMS OF FARMERS' REGIONAL PURCHASING ASSOCIATIONS

Research has been used for a quarter of a century or more as a tool in helping to guide operations of farmers' regional purchasing associations. After the close of World War I its significance became fully appreciated by progressive business leaders - cooperative and private alike.¹ Except for a limited number of "home-spun" attempts to conduct studies on their own behalf, few purchasing cooperatives, however, initiated such efforts in an organized way until the 1930's. In fact, the practice did not become common until after the time of our entrance into World War II. Before then it primarily was through studies of State and Federal agencies that officials of most purchasing associations obtained first-hand information as to possibilities in research.

¹The first issue of American Cooperation, the proceedings of the American Institute of Cooperation contained a paper on Commercial Research as an Aid to Management, by L.D.H. Weld, at that time manager of the commercial research department of Swift and Company; and one on Business Analysis for Cooperatives, by A. V. Swarthout, Marketing Economist, Division of Agricultural Cooperation, U.S. Dept. Agr. See Amer. Inst. of Cooperation. Amer. Cooperation. 1925. 1:453-464.

Note. - Acknowledgement is expressed to managers and administrative officials of associations visited for assistance in discussing research activities and problems of cooperative associations they represent. Suggestions of faculty members of several agricultural colleges and officials of numerous district banks for cooperatives also are acknowledged. The counsel and encouragement of Dr. Joseph G. Knapp, In Charge, Purchasing Section, Cooperative Research and Service Division, Farm Credit Administration, United States Department of Agriculture, are sincerely appreciated.



THE MEANING AND IMPORTANCE OF RESEARCH

To develop a better understanding of how the term, "research" is used in this publication, it will be helpful to give brief attention to some of the ideas that commonly are associated with it. Furthermore, it will be helpful to note the importance of research to purchasing associations and to observe ways in which it enables these cooperatives to better achieve the realization of their basic objectives.

WHAT IS MEANT BY RESEARCH?

It is difficult to give a concise definition of research that will apply to all circumstances. Webster's New International Dictionary defines research, however, as a "careful or critical inquiry or examination in seeking facts or principles; diligent investigation in order to ascertain something." The Encyclopedia of Social Sciences interprets research as "the manipulation of things, concepts, or symbols for the purpose of generalizing to extend, correct, or verify knowledge." It is important to note that these definitions stress such terms as careful or critical inquiry; facts or principles; and extended, corrected, or verified knowledge.

Stress on careful and diligent inquiry calls attention to the necessity of following tested and approved research procedure. This serves as a basis for differentiating research from casual observation and the mere assembling of information - a procedure which may or may not be in accordance with scientific methodology, and may or may not have as its primary purpose the conducting of research.

Emphasis on principles suggests that facts and data obtained are in need of analysis. It calls attention to the need for classification of findings, noting of interrelationships, drawing of conclusions, and recording of observations. The ability to perform these functions adequately serves to distinguish the modern research worker from the statistical clerk or the technical assistant.

Consideration of such matters as extension, correction, and verification of knowledge relates, to an appreciable degree, to the application that purchasing associations can make of research studies. To the extent that new findings are made available, purchasing regionals are in position to use research in evaluating possibilities for adjusting the nature and scope of business operations. The correction of knowledge through research enables cooperatives to replace the hunches, personal opinions, and biases that too commonly have characterized the basis for policy determination. Verification of facts should be of assistance in that it is only through such a practice that policies can be continued with confidence. It helps to avoid unnecessary efforts and the need for many trial-and-error experiments along uncharted business courses.

While many officials of purchasing associations are attaining adequate understanding and proper appreciation of research, it is important to emphasize that experience has demonstrated that it can be conducted

effectively only by persons who are properly trained, adequately experienced, and professionally capable. The ability of cooperatives to staff their research departments with personnel having these qualifications will go a long way in determining the degree to which research may render effective assistance in guiding operations in the years ahead.

CLASSES OF RESEARCH

The preceding discussion of research applies to all kinds of investigations - those conducted by chemists, doctors, or economists. A classification of research for managers and directors of purchasing associations, however, will be helpful. In actual practice, two classifications have become common. These are (1) industrial and (2) business.²

It is difficult to establish concise distinctions for the purpose of differentiating these classes of research. This is because many associations have come to think more in terms of the problem approach to their business operations. To the extent that research is applied to operations it may relate to investigations of either an industrial or a business nature. Not infrequently many aspects of investigations require the use of both classes of research, often in very interrelated and complex ways.

In general, however, industrial research has come to be associated with investigations designed to increase well-being through the creation of new physical wealth. Much of this research is conducted in chemical laboratories, although increasingly important are photometric, biological, and physical investigations that pertain to particular products. The terms "technical" and "scientific" sometimes are employed to describe this class of research. However, since these terms also may describe aspects of business research, they do not seem entirely satisfactory and therefore are not used as a basis for distinction in this study.

The term "business research" commonly is associated with investigations in many branches of economics, political science, psychology, sociology, history, and more recently, law, education, and ethics. Economic studies - the most important of many kinds of business investigations - often are described under the following terms: sales, commercial, statistical, and market research.

Among both cooperative and private establishments, the field of business research is of more recent development than that of industrial research. It has shown remarkable growth, however, and in 1939 a leading business executive reported, "...Applied science and technology have added immensely to our wealth and I, who have devoted my business life to the tools of research, would be among the last to minimize that contribution; but I can think of no aggregate of contribution that research in the physical sciences might have made during the last decade to equal that which an understanding and control of economic phenomena would have made."³

²Based on the classification of the National Resources Planning Board. See Natl. Resources Planning Board. Research - a National Resource: Part I. Relation of the Federal Government to Research. Part II. Industrial Research. Part III. Business Research.

³Leeds, M. E. Political Economy and the Industrialist. Amer. Acad. Polit. and Social Sci. Ann. 204:72-79. 1939.

In general, it can be said that many of the findings of business research are less definite than the findings of industrial research. This is explained in part by the fact that the former deals in the field of human relations - the more or less intangible and uncertain, though nonetheless important and interesting, relations of man to man - while the latter relationships are those of man to nature and, in many respects, are subject to greater control and stability.

THE IMPORTANCE OF RESEARCH

That growing importance is attached to research by large-scale farmers' regional purchasing associations is evidenced by the following developments:

1. Operation of its own research farms by the Eastern States Farmers' Exchange.
2. Granting of \$200,000 by the Cooperative G.L.F. Exchange, Inc., to the School of Nutrition at Cornell University.
3. Establishment of research departments or the employment of full-time research personnel by the Cooperative G.L.F. Exchange, Inc., the Missouri Farmers Association (the M.F.A. Milling Company - a farmers' regional purchasing association - is an important affiliate), Southern States Cooperative, Inc., and the Pennsylvania Farm Bureau Cooperative Association, Inc.
4. Support of fellowships at and the making of research grants to State agricultural colleges.
5. Assistance of research personnel from State and Federal agencies and use of research techniques in the preparation and execution of post-war plans.

Factors that have accounted for increased attention to industrial research by purchasing regionals include significant technical developments in the manufacture or processing of such materials as feed, fertilizer, petroleum products, farm machinery, and general farm and household supplies. These are important items in the operations of most farm supply associations and research for the purpose of improving and developing these products has served as a first-hand demonstration of advantages to be gained by such investigations for farmer-members.

Business research by regional purchasing associations primarily has given attention to such problems as economic aspects of manufacturing and production, purchasing, distribution, marketing of farm products, transportation, administration, financial structure, general economic trends, and personnel. In this connection expansion of work in agricultural economics at many land grant colleges and activities of the Cooperative Research and Service Division, Farm Credit Administration, have given increased emphasis to problems of business research among purchasing regionals.

That research as well as competition is an important factor inducing regional purchasing associations to strive for successful operation has

been emphasized to them both by business relations with those private companies that furnished them with supplies and by competition from many other business establishments that took aggressive steps to avail themselves of latest research findings. The very practical necessity of obtaining the best possible answers to pertinent problems - answers that required careful research as a basis for sound policy determination - has done much to develop better appreciation as to the place of research in the successful operation of large-scale regional purchasing associations.

Two World Wars during the past 30 years have contributed to rapid and drastic changes in the nation's business economy. Likewise, tremendous adjustments to meet postwar conditions seem a certainty. Developments in technology have outmoded many manufacturing and processing techniques. Along economic lines marked changes in distribution methods, further emphasis on efficiency and performance, and increased competition are some of the factors likely to characterize this period. The importance of research in helping purchasing associations adjust operations to these eventualities is becoming increasingly evident.

No adequate information is available relative to yearly expenditures for research by farmers regional purchasing associations.⁴ This is understandable since much business research has been conducted within departments and consequently research costs have not been reported separately. Likewise, many associations report no breakdown for quality control expenditures as contrasted with industrial research. A very rough estimate for the 1944 fiscal year places all expenditures for research by these associations at one-third of a million dollars and all quality control work at about the same figure. Of the expenditures for research perhaps one-third is for business research and two-thirds for industrial research.

RESEARCH: AN ESSENTIAL FOR THE ACHIEVEMENT OF BASIC OBJECTIVES

The ability of farmers regional purchasing cooperatives to make effective use of research primarily will depend upon the extent to which such activities enable them to do a better job of achieving basic objectives for which they are organized. These objectives apply to both technical and business research and include increased economy, better service, and improved quality.⁵

⁴The growth of industrial research among private business concerns in the United States has been extremely rapid. The earliest reliable figures are for 1927 when it was reported that 16,000 individuals were employed in industrial research and that annual expenditures amounted to 100 million dollars. By 1940 the National Resources Planning Board reported that American industry then employed 50,000 specialized industrial research workers in over 2,200 laboratories, and estimated the total cost of conducting this research work at approximately 300 million dollars annually. In addition, some 500 industrial establishments reported the employment of 20,000 individuals and an expenditure of about 200 million dollars on various forms of business research. For the fiscal year 1936-37 the United States Government reported the expenditure of 120 million dollars for research. Of this amount approximately 85 million dollars was spent direct by the Federal Government and the rest was allocated to non-Federal agencies. Some measure of the importance attached to research as related to military activities is indicated by the fact that as of May 1945 the Office of Scientific Research and Development, created by Executive Order for military research, reported that the total cost of carrying out this program, including obligations still to mature, approximated half a billion dollars.

⁵For discussion of basic objectives of cooperative purchasing associations see Knapp, J. G., and Lister, J. H. Cooperative Purchasing of Farm Supplies. Farm Credit Admin. bul. 1. 92 pp. 1935. See p. 6.

Technical studies, established to develop new products and to find improved ways of manufacturing or processing old items, have enabled purchasing associations to use industrial research to realize additional efficiency. Likewise, investigations directed toward economies in manufacturing, purchasing, and distribution emphasize the importance of business research in contributing toward efficiency of operation.

In stressing better service, the experience of regional purchasing associations indicates that both classes of research - industrial and business - have made contributions toward achieving this objective. The development of new and better machines for performing various farm tasks and the adoption of numerous improvements in the formulation and processing of feeds and fertilizers, together with improvements in seed strains, all are means by which industrial research has made contributions toward improvement in service. Business research has contributed by indicating how such functions as credit, transportation, and distribution may be performed so as to better serve farm members.

Closely related to service and economy is the objective of quality improvement. Much of this work as conducted by purchasing cooperatives cannot be strictly classified as research. It is true, nevertheless, that laboratory tests for product maintenance and quality improvement have made definite contributions toward developing better appreciation of accomplishments made possible through investigational work.

Furthermore, in some instances, control and specification tests have been supplemented by applied investigations conducted for the purposes of bringing about improvement in quality and of bettering the performance of the principal supplies distributed.

Increased emphasis on the attainment of basic objectives of economy, service, and quality suggests the desirability of looking to research as a means for charting new plans and operations. In fact, research has been referred to by the manager of one of the larger purchasing associations as a compass for guiding policy determination.

THE INFLUENCE OF CHANGES IN THE GROWTH AND STRUCTURE OF REGIONAL PURCHASING ASSOCIATIONS

Marked changes have characterized the development of farmers purchasing associations in the United States since 1920. Of special importance has been the trend toward large-scale regional cooperatives. This development has contributed to the growth of close operating relationships with the many types of local cooperatives that have established business connections with farm supply regionals. The trend toward large-scale operations also has brought about a significant integration of such functions as manufacturing, wholesaling, and retailing. Furthermore, it has served to concentrate a relatively large volume of business in the hands of a small number of associations.

It is only natural that these trends should bring with them distinct problems pertaining to manufacturing, purchasing, distribution, marketing,

administration, and traffic. Other closely related considerations include membership responsibilities, public relations, and patron and member education. These developments and the problems that are associated with them are proving fertile fields for research.

Other factors have been important in contributing to the growing interest in research on the part of farmers regional purchasing associations. Foremost is the fact that these cooperatives often have employed personnel with more training and a higher degree of appreciation for research than have local purchasing cooperatives. Another factor of importance is that associations are beginning to have adequate finances for conducting investigational work. Finally, as purchasing regionals have had an opportunity to gain first hand acquaintanceship with investigational activities of other research agencies, they have developed increased confidence in using research as a means for dealing with their operating problems.

Growing reliance on research by farmers' purchasing associations suggests more inclination on the part of these cooperatives to use sound and established policies as a basis for business operations. Research also is coming more and more to serve as a basis for helping associations develop educational programs. These may than be coordinated so these cooperatives can more effectively attain basic objectives. To the extent that purchasing regionals use research in these ways, they will be building operations on sounder business foundations.

OBJECTIVES AND METHODS OF STUDY

OBJECTIVES

Increased interest in problems of research by farmers regional purchasing cooperatives has focused attention on the need for obtaining information about the research activities of these cooperatives. Furthermore, it has called attention to the importance of determining how associations may most effectively organize their research programs. It also has emphasized the desirability of making studies to obtain adequate and accurate information to serve as a basis for policy determination. This applies to all associations - those that plan to establish their own research departments as well as those that primarily expect to rely on the services of available research agencies.

More specifically, objectives of this study include:

1. Appraisal of existing research programs of farmers regional purchasing associations, giving consideration to the character of research activities undertaken.
2. Determination of research needs.
3. Determination of extent to which public and private research agencies are used, giving particular attention to possibilities for collaboration between purchasing associations and agricultural colleges, Federal agencies, and private research establishments.
4. Consideration of essentials in establishing effective research programs.
5. Determination of means by which research techniques may be used to improve educational programs.

METHOD

In obtaining information as a basis for this study 13 farmers' regional purchasing associations were visited. The location of these associations is shown in figure 1. Managers and other key administrative officials were consulted relative to the nature and extent of research conducted by the associations they represented. Efforts also were made to obtain the views of these officials concerning possibilities for development of effective research programs. Depending upon the administrative organization of associations visited, in addition to managers, those interviewed usually included personnel in charge of the following departments: feed, seed, fertilizer, petroleum products, farm machinery, miscellaneous farm and household supplies, manufacturing, purchasing, distribution, finance, credit, traffic, marketing of agricultural products, office management, and personnel.

The regional purchasing associations visited were:

Cooperative Grange League Federation Exchange, Inc.
Ithaca, New York

Eastern States Farmers' Exchange
West Springfield, Massachusetts

Southern States Cooperative, Inc.
Richmond, Virginia

(Ohio) Farm Bureau Cooperative Association, Inc.
Columbus, Ohio

Illinois Farm Supply Company
Chicago, Illinois

Farmers Cooperative Exchange, Inc.
Raleigh, North Carolina

Indiana Farm Bureau Cooperative Association, Inc.
Indianapolis, Indiana

Farmers Union Central Exchange, Inc.
St. Paul, Minnesota

Consumers Cooperative Association
Kansas City, Missouri

The M.F.A. Milling Company
Columbia, Missouri

Midland Cooperative Wholesale
Minneapolis, Minnesota

Pennsylvania Farm Bureau Cooperative Association, Inc.
Harrisburg, Pennsylvania

Central Cooperative Wholesale
Superior, Wisconsin

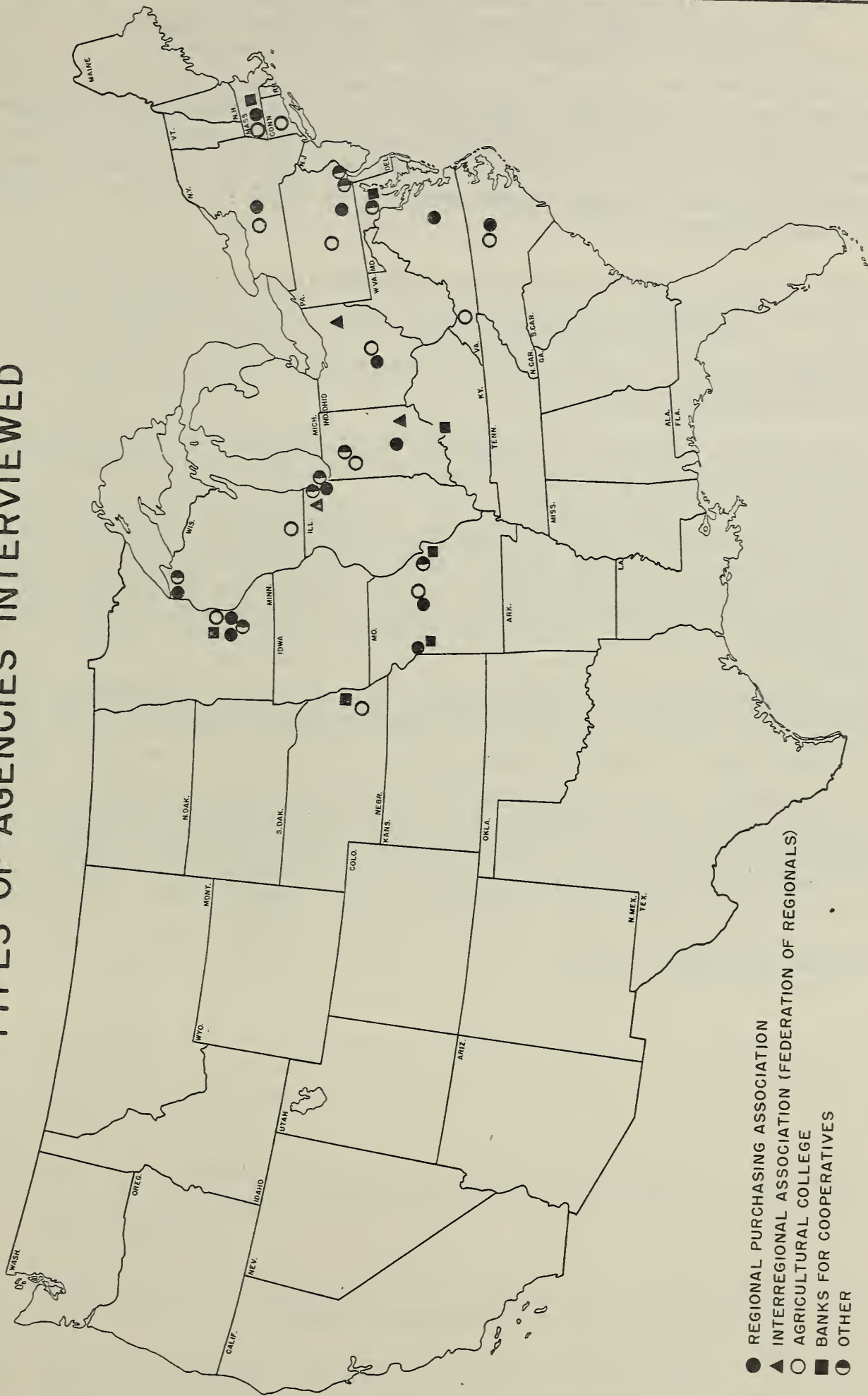
In addition to these associations three purchasing cooperatives, organized as federations of regionals and frequently referred to as inter-regional associations, were visited. These were:

United Cooperatives, Inc.
Alliance, Ohio

National Farm Machinery Cooperative, Inc.
Shelbyville, Indiana

National Cooperatives, Inc.
Chicago, Illinois

FIGURE 1
TYPES OF AGENCIES INTERVIEWED



Limitations on time and wartime considerations as to travel did not permit consultation with officials of major purchasing associations on the Pacific Coast. Research and extension staff members in selected production departments and in the departments of agricultural economics of 12 agricultural colleges were consulted. Particular attention was given to their views as to research problems and practices of regional purchasing associations in their territory and to research functions that agricultural colleges might undertake that relate to problems of these associations.

Officials of six district banks for cooperatives were consulted. Because of their intimate acquaintanceship with the purchasing associations operating in their territory they were in position to offer many helpful suggestions relative to the status and possibilities of research as related to purchasing regionals.

Officials of one of the four regional laboratories of the United States Department of Agriculture were consulted. Since these laboratories are established to conduct research in the development of agricultural products it is believed that some of their findings may be of use to purchasing associations. In the future there is a possibility that research interests of purchasing regionals as they relate to special items may be more closely integrated with the many research activities of these laboratories.

To supplement opinions of officials of purchasing cooperatives, research officials of a limited number of selected private business establishments were interviewed. These concerns were in position to furnish supplementary information relating to research work in their fields of activity that were along lines similar to the investigational efforts of some purchasing associations. Other agencies interviewed included officials of the American Institute of Cooperation, general farm organizations, cooperative auditing establishments, the Cooperative Correspondence School, the American Farm Research Association, and the Cooperative Fertilizer Research Bureau.

RESEARCH AGENCIES AVAILABLE TO FARMERS' REGIONAL PURCHASING ASSOCIATIONS

Many types of research agencies are available to farmers' regional purchasing associations. The more important include: (1) joint research departments of purchasing regionals, (2) agricultural colleges, (3) Federal Government, (4) private suppliers, and (5) commercial research concerns. Attention is here given to the research activities of each of these agencies insofar as they conduct studies of interest to purchasing cooperatives.

JOINT RESEARCH AGENCIES OF PURCHASING REGIONALS

A recent development by purchasing regionals has been the formation of joint research agencies, or clearing houses, to supplement their own investigations. The Cooperative Fertilizer Research Bureau and the American Farm Research Foundation are examples of such organizations.

Strictly speaking, these agencies do little research. They do have an important educational influence, however, in that they help to acquaint officials of purchasing cooperatives with possibilities of research. They also report trends in investigational work among agricultural experiment stations and other research agencies. It is in this capacity that they serve as clearing houses in acquainting officials of associations or department heads with specific research findings and in indicating how such investigations may apply to the operations of affiliated members.

A recent and interesting development has been the establishment of the "Co-op Correlating Committee" by the Cooperative G.L.F. Exchange, Eastern States Farmers' Exchange, Pennsylvania Farm Bureau Cooperative Association, Inc., and other cooperatives operating in Pennsylvania.

Working closely with the Pennsylvania State College, these associations, all of which operate in that State, have as their stated purpose:

1. Serve as a clearing house through which the research problems of farmers may be brought to the attention of the Experiment Station and to aid in carrying the results of research into farm practice.
2. Provide a means of correlating the educational activities and action programs of cooperatives with educational activities of the college.
3. Facilitate the testing, on a farm basis, of promising experimental results, through cooperation with the Extension Service.
4. Aid in providing financial support for specific research projects.

Interregional associations also may serve member associations on research studies of joint interest. They often are in position to undertake investigations of a number of items that regionals, because of their limited volume of business in such products, are not able to initiate advantageously. It also has been suggested by officials of some regionals that interregional associations be staffed to carry on business research on problems of general interest to member associations.

AGRICULTURAL COLLEGES⁶

Through research, teaching, and extension, agricultural colleges have contributed to the development of all types of cooperative endeavor - marketing, purchasing, and services. Among some agricultural colleges the policies toward cooperative associations have not always been clearly defined with the result that little or no aggressive effort has been directed toward work with associations. Other institutions - notably Michigan State, Wisconsin, Cornell, and Missouri - to mention a few - have worked closely with associations serving farmers in their area. Research efforts of agricultural experiment stations that are of interest to purchasing cooperatives relate to basic industrial research on the principal commodities handled and to business research on varied aspects of operating performance.

"Inventory studies" of cooperative associations have been conducted from time to time by land grant colleges. As a rule these investigations take the form of determining the number of associations of different types operating in States. In addition, they usually furnish supplementary information as to number of members, volume of business, and general information relating to organization practices.

Some colleges have supplemented general inventory studies with detailed research relating specifically to functional and structural operations of cooperative associations. These studies are directed toward operating problems of associations, usually give considerable attention to analytical procedures and, as a rule, offer suggestions and conclusions as to business practices.

While not pertaining directly to research, the offering of courses in the marketing of farm products and in cooperative marketing at agricultural colleges has been helpful to all types of associations, and has enabled colleges to supply men for agricultural positions who have basic training in the principles of cooperative marketing. A few agricultural colleges have conducted cooperative schools and short courses for special employee groups from regional associations - purchasing or marketing. Extension representatives in marketing and in production as well as

⁶The first recorded effort by an American university to engage in research was the establishment of a research bureau in 1876 by Johns Hopkins University. Since that time educational institutions have established approximately 200 research laboratories, primarily for the purpose of conducting fundamental and basic research along industrial lines. It is reported that some universities devote as much as 25 percent of their budgets to research. Many educational institutions also have given considerable attention to business research. In addition to departments of agricultural economics at land grant colleges, schools of business administration - notably at Harvard, Chicago, Ohio State, and Texas - have made significant contributions in applying business research to the operations of business concerns.

personnel in departments of home economics also have been called in to advise with purchasing associations from time to time.

FEDERAL GOVERNMENT

Not unlike agricultural colleges, agencies of the Federal Government have undertaken considerable research with all types of cooperative associations. In fact, it has been established policy of the Federal Government for 25 years to assist farmers' cooperative associations. Studies of a general nature were undertaken as early as the 1920's by the Division of Agricultural Cooperation of the United States Department of Agriculture which is now the Cooperative Research and Service Division in the Farm Credit Administration. The Agricultural Marketing Act of 1926 specifically provided for the creation of a division of cooperative marketing to carry on research and to provide assistance for farmers cooperative marketing and purchasing associations.

During the period when this division was a part of the Federal Farm Board these investigations were expanded. Since the division's transfer to the Farm Credit Administration in 1933 its Cooperative Purchasing Section has conducted extensive business research in the problems of purchasing associations. Research in this Section has included publication of numerous bulletins relating to problems of business organization and operation of purchasing regionals. Other studies have dealt with important commodities handled by associations and with problems of distributing these commodities. Similarly, studies also have been directed to the performance of such business functions as credit control, transportation, and distribution. On occasion studies have been conducted on a joint basis with agricultural colleges.⁷

In other instances, specific investigations relating to the nature and extent of cooperative purchasing in many States, areas, or regions have been undertaken. In addition, numerous articles relating to problems of purchasing cooperatives have been published in the "News for Farmer Cooperatives" and other publications. Special studies, consultive work, and confidential reports for individual cooperatives are other services that have been performed by this section.

These efforts have been supplemented from time to time by informal investigations by district banks for cooperatives. While these studies have been more or less incidental to the operation of these institutions, they have been helpful in dealing with specific problems of purchasing associations. For example, one bank for cooperatives has worked on the relationship between the price of potatoes and the demand for potato fertilizer during the succeeding year. Some banks also have summarized operating costs for various types of cooperative processing and manufacturing operations within their district. One bank has collected refined price data for special commodities handled by cooperatives in its territory.

⁷Froker, R. K., and Knapp, J. G. Farmers' Purchasing Associations in Wisconsin. Farm Credit Admin. bul. 29. 118 pp. 1937.

The Bureau of Agricultural Economics and the Extension Service of the Department of Agriculture, also have prepared materials of an economic nature that associations have found very valuable in their operations.⁸

PRIVATE SUPPLIERS

On occasion, private suppliers have cooperated with purchasing associations in conducting industrial research. Often in the role of "trouble shooters," purchasing associations have come to them with problems that have arisen in handling products purchased from these concerns. For this reason research is sometimes undertaken to maintain good will and to improve the quality of products distributed.

In some instances, instead of doing research work themselves, private suppliers have taken studies to commercial research establishments. Some of the more aggressive suppliers, however, have gone so far as to encourage active research relations with regional purchasing associations. In this way they have sought to improve or develop the types of products that these associations are interested in obtaining through them.

COMMERCIAL RESEARCH ESTABLISHMENTS⁹

Services of commercial research establishments have been used only to a limited extent by regional purchasing associations in the development of actual research programs. They have, however, had considerable influence on conducting quality control work. Such use as has been made of these agencies primarily has related to specific jobs for which associations have lacked personnel and facilities.

Ability of associations to use services of commercial research concerns often is conditioned by such factors as limited experience of these agencies with the nature of cooperative problems that arise and high

⁸In addition, the Department of Agriculture through the Bureaus of Animal Industry, Agricultural and Industrial Chemistry, Dairy Industry, and Plant Industry, Soils and Agricultural Engineering, has made important contributions in industrial research that relate to some of the items supplied to farmers by regional purchasing associations. The Bureau of Agricultural and Industrial Chemistry has charge of the four regional laboratories established to encourage research in the development of industrial uses for agricultural products. According to their scope of activities, these Bureaus also have responsibility for supervising the efforts of other laboratories that give attention to such important problems of agricultural development as: (1) better seed varieties, (2) pasture improvement, (3) soybean development, (4) swine improvement, (5) sheep breeding, (6) communicable diseases of domestic animals, (7) poultry viability, and (8) nutritional problems. Further, the Office of Market Services and the Bureau of Human Nutrition and Home Economics, Department of Agriculture; the National Bureau of Standards, Department of Commerce; and the Pure Food and Drug Administration, Federal Security Agency, all have made important contributions with respect to the improvement and maintenance of grades, desired specifications, and quality of the varied items over which they exercise jurisdiction. Likewise, the Bureau of Foreign and Domestic Commerce, the Census, and the Department of Labor have accumulated great amounts of statistical material and general economic information that are useful in business research.

⁹One of the important agencies, organized to bring about an integration of industrial research activities for the prosecution of World War I, is the National Research Council, established in 1916. In addition to numerous commercial laboratories, the Mellon Institute for Industrial Research, Battelle Memorial Institute, and Armour Institute of Technology, are among the better known industrial research institutes.

From the standpoint of business research, the activities of such foundations as the National Bureau of Economic Research, Brookings Institution, Faulk Foundation, the 20th Century Fund, and the Russell Sage Foundation have made important contributions.

charges for services rendered. At times these concerns are in position to do a relatively good job in industrial investigations but they lack qualifications to be of much assistance in business research.

FACTORS AFFECTING USE OF OUTSIDE RESEARCH ORGANIZATIONS

In general, the degree to which purchasing associations are likely to use the various agencies available to perform research for them depends upon such factors as:

1. Interest of association management and directors in research.
2. Established reputations of the different research agencies.
3. Qualifications of available research personnel.
4. Interest in research on the part of other purchasing cooperatives.
5. Research activities of private business concerns with which cooperatives have established business relations.
6. Ability of commercial research agencies to conduct investigations applying to problems of purchasing regionals.

It is also true that purchasing associations through grants and fellowships to agricultural colleges and by requests for specific studies to State and Federal agencies, in some instances have exerted, and in all cases are in position to exert appreciable influence on the direction that research work relating to their operations may take.

INDUSTRIAL RESEARCH ACTIVITIES OF FARMERS' REGIONAL PURCHASING ASSOCIATIONS

Industrial research efforts of farmers' regional purchasing associations primarily have been directed toward improvement in the quality of supplies handled. Progress in the realization of this goal will do much in enabling associations to help improve the use made of supplies purchased cooperatively. The following discussion attempts to describe the character of industrial research developed by purchasing regionals as it relates to principal supplies distributed: (1) feeds, (2) fertilizers, (3) seeds, (4) petroleum products, (5) farm machinery, and (6) farm and household supplies.

FEEDS

Research in feeds¹⁰ generally has been conducted by agricultural colleges, commercial research agencies, and feed distributors - regional purchasing cooperatives or private establishments. Purchasing associations long have been conscious of the importance of quality in the kinds of feeds they manufacture and distribute. Perhaps most significant in contributing to an appreciation of quality has been the early research work in feeds conducted at agricultural experiment stations.

The efforts of Professor E. S. Savage of Cornell University, who took active steps in the establishment of feed conference boards, did much to bring about closer working relationships between feed distributors - cooperative and private - and agricultural colleges.¹¹ At the present time several cooperative feed conference boards are functioning. College representatives from New York, Pennsylvania, and New Jersey are of assistance to Cooperative G.L.F. Exchange, Inc. and Pennsylvania Farm Bureau Cooperative Association, Inc. Eastern States Farmers' Exchange consults with representatives of agricultural colleges from all New England States and Pennsylvania, Maryland, and Delaware. Southern States Cooperative, Inc. has established a feed conference board for the territories it serves.

In general, these boards, irrespective of location, have assisted regional purchasing associations through (1) presenting newest developments in feed research, particularly as they relate to the use of various types of ingredients; (2) helping to establish adequate and economical feed formulas; and (3) acquainting officials with research findings in manufacturing and processing methods.

Eastern States Farmers' Exchange was perhaps the first regional purchasing association to actively engage in feed research. As early as 1930, in conjunction with some of the colleges in its territory, this association instigated a feed research program for the primary purpose of applying the findings of basic research at agricultural colleges to

¹⁰For a discussion of recent activities of cooperative feed distributing agencies see Rickey, L. F., War Adjustments of Feed Cooperatives in the East and Middle West. Farm Credit Admin. W. C. 13, 39 pp. 1943. (Processed.)

¹¹The services of agricultural colleges are available to private as well as to cooperative feed distributing agencies. In actual practice, however, the feed conference boards have been used almost entirely by purchasing cooperatives.

its program of supplying production value in feed. The association has stressed a three-point research program that seeks to determine (1) nutrient requirements of livestock, (2) nutrients contained in various ingredients, and (3) methods of combining ingredients to supply required nutrients.¹²

In its early approach to research in feeds, Eastern States followed the general practice of trying to conduct a considerable amount of its investigational work on the farms of member patrons on an experimental basis. Experience demonstrated, however, that it was not practical for farmers to keep careful and adequate records to serve as a basis for tabulating research findings or to subject their producing herds or flocks to the tests required. Therefore, in 1938, the association purchased a farm for the specific purpose of conducting investigations under controlled conditions and in accordance with approved techniques. The association reports that special stress was placed on supplementing rather than duplicating the research efforts of agricultural experiment stations.

In 1945 the association maintained about 90 Guernsey and Holstein cows - grade and purebred - together with a large number of calves and yearling livestock. In addition, large numbers of young chicks, laying hens, poults, and turkeys are maintained for undertaking investigations relative to the influence of poultry feeds on such items as fertility, hatchability, and growth. Through grants and fellowships the association also has worked closely with agricultural colleges.

The Cooperative G.L.F. Exchange, Inc. has placed major emphasis in its feed research upon numerous fellowships established at land grant colleges. Prior to the beginning of World War II, expenditures for conducting the investigations supported by fellowships and grants averaged as high as \$10,000 yearly. To a lesser degree, some of the other regionals have maintained fellowships and have made grants for research in feeds at agricultural experiment stations.

Most of the regional purchasing associations have established quality control laboratories where ingredients purchased and the feeds manufactured are tested for compliance with established specifications as to moisture, protein, fat, carotene, flavin, and mineral content. At these laboratories attention has been given from time to time to certain specific research problems. For instance, the Southern States laboratory at Baltimore has undertaken the improvement of feed bags. Workers at some laboratories have contributed to the development of techniques for testing the composition of feed products handled. It is reported that the research efforts at most laboratories of purchasing associations, however, do not account for over 5 to 10 percent of their total

¹²Eastern States has developed a philosophy of "value in use" in the distribution of its major farm supply items. This philosophy is based on the belief that an association is not necessarily performing the best and in many instances the most economical service for patrons by merely furnishing the best of products available. By careful research procedures Eastern States has undertaken to improve and in some instances create new products when and if research findings show that this can be done to the advantage of farmer patrons. This approach to quality has resulted in notable developments in feeds, fertilizers, and seeds.

activities.¹³ Some of the associations not maintaining their own laboratories use State and private testing agencies, often to run "spot tests" on ingredients purchased or feeds manufactured.

More specific indication as to the nature and direction of feed research conducted by purchasing associations may be obtained by considering the principal types of investigations undertaken or supported. These are discussed in the following sections.

The vitamin content of feeds. Particular attention has been given to the selection of vitamin carriers, carotene content, and sources of vitamin D. Further research on the vitamin content of feeds has considered the influence of the following factors: practices in soil maintenance and improvement, curing methods, processing procedures, and storage practices. Eastern States Farmers' Exchange also has pioneered in experiments of vitamin A requirements for dairy calves.

Protein supplements for feeds. The necessity for developing substitutes for animal protein during wartime prompted numerous associations to undertake or support investigations designed to determine the minimum amounts of animal protein requirements for various classes of livestock. Eastern States Farmers' Exchange, for instance, conducted experiments with its poultry flocks in order to determine both the minimum amount of total protein and the minimum amount of animal protein needed to maintain adequate rations. Research with urea at land grant colleges was stimulated by the growing need for protein supplements and has proved beneficial to the feed processing activities of purchasing associations. There also has been considerable investigation, both chemical and biological, of the various amino acids and other constituents of the different proteins. Proper balance for best nutritional results have been studied through feeding tests.

Soybeans. One of the more recent developments relates to investigations in the manufacture and use of soybean meal for livestock feed. Studies of processing methods have contributed to increased efficiency in the utilization of this product. Research at agricultural colleges through experiments supported by purchasing associations also has emphasized the importance of properly processing soybean meal if it is to be used in conjunction with urea in the feeding of dairy cattle.

Mineral deficiencies. It has been established that cobalt, together with other minor elements, is deficient to such an extent in certain areas that it has been advisable to supplement these elements in the feeding of various classes of livestock. Pioneering studies were conducted by agricultural experiment stations and by Eastern States Farmers' Exchange to establish the desirability of supplementing feeds with certain of these elements. The Eastern States Farmers' Exchange has gone

¹³Research officials of two of the major private feed companies estimated that 67 and 60 percent, respectively, of their laboratory work is research as contrasted with control work. These companies reported laboratory staffs of 40 to 45 and 21 persons, respectively. In addition, each maintains farms for applied research. The larger company also maintains extensive organic, inorganic, photometric, and biological laboratories for research and product control.

further and checked toxicity of some of these elements, particularly cobalt, to livestock. Eastern States also has experimented with ground limestone to replace oyster shells and defluorinated rock phosphate as a substitute for dicalcium phosphate before advocating the use of these materials by members.

Fish meal. Findings of the Indiana Farm Bureau Cooperative Association, Inc. have established the fact that the protein content of various types of fish meal varies appreciably. Research has enabled the association to standardize the amount and kinds of such material used and has contributed to the increased uniformity of the feeds manufactured.

While not necessarily a part of feed research, closely interrelated considerations have received the attention of some of the major regional purchasing associations. For instance, animal health has a marked influence on the effective use of feeds and some purchasing associations have engaged full-time employees to give attention to this important matter. Some associations located in extensive poultry areas are establishing hatchery services. Besides resulting in marked improvement in the quality of chicks obtainable by members, this service closely supplements feed distribution efforts of purchasing associations and in this way extends the services which these cooperatives may offer farmers.

Purchasing cooperatives have indicated that future problems for investigation with feeds are likely to include:

1. Vitamin concentrates.
2. Animal protein supplements.
3. Expanded nutritional uses for soybeans, peanuts, and similar products.
4. Greater attention to crop fertilization in order that feeds may have increased nutritive value.
5. Industrial aspects of the development of local feed mixing facilities by many member units.

Largely through the efforts of the Cooperative G.L.F. Exchange, Inc. attention also is being given to research problems relating to human nutrition. The association has stressed locker developments and food preservation in these efforts.

In general, the experience of regional purchasing associations suggests that additional investigations are necessary to make basic findings in feed research at agricultural colleges available to farmers. Purchasing regionals have taken steps to apply fundamental findings of experiment stations to specific feeds they provide and to conditions under which such feeds are used.

FERTILIZERS

In many respects early developments in fertilizer research by regional purchasing cooperatives have closely paralleled investigations in feed. In some of the territories served, college fertilizer or agronomy conference boards have been functioning for a number of years. In a few instances representatives from interested Federal agencies also have participated in discussions at board meetings.

Officials of associations report that the primary advantage of conference boards is their contributions toward obtaining uniform recommendations for agronomic practices among States in the territory served. Another important function of these boards has been to advise with associations on all matters pertaining to ingredients, usage and application, formulation of mixtures, and processing methods.

A considerable share of the research in fertilizers undertaken by regional purchasing cooperatives has grown out of quality control work. Although it is reported that as a general rule from 90 to 95 percent of the work at their fertilizer laboratories is devoted to quality control, the proportion devoted to research has been increasing during recent years. Officials of some associations indicated that they anticipate devoting as much as 50 percent of their laboratory work with fertilizers to various phases of research work.¹⁴

Not unlike the practice followed with respect to feeds, those associations not maintaining laboratories of their own often have relied upon State laboratories or commercial testing agencies to ascertain the quality of fertilizer for them. The prevailing practice is to spot-test ingredients and mixed fertilizers. In this way these cooperatives seek to obtain a reasonable degree of quality control.

Regional purchasing cooperatives also have given consideration to a "demonstration approach" for some kinds of fertilizer investigations. The general belief prevails that it is desirable to give member patrons visual demonstrations of the possibilities of fertilizers and the influence of different methods of application. As an official of one association remarked, "Any plant or soil test that leaves the farmer's eye tends to lose significance."

The Illinois Farm Supply Company and the Eastern States Farmers' Exchange have given a great deal of thought to such problems as soil and plant tissue analysis and the relation of such findings to the development of fertilizer programs designed to correct plant food deficiencies. In order to obtain supplementary data as a background for such work a large number of top-soil and sub-soil tests have been made on the farms of member patrons. In 1941 as many as 2,100 soil samples were taken by Eastern States Farmers' Exchange. In addition, this cooperative has collaborated with the U.S.D.A. Nutritional Research Station at Ithaca, New York, on plant tissue investigations.

¹⁴While some associations maintain quality control laboratories at their respective plants, common procedure is to centralize such work at one main plant. The usual practice also is to combine quality control in one laboratory for the various products handled - feeds, fertilizers, seeds, petroleum products, and other items.

Obtaining such samples has the added advantage of enabling associations to do effective "trouble-shooting" for members along agronomic lines. Such activity as a rule leads to further research and, as reported by an official of an association, "It helps us to keep our finger on the pulse and to apply principles. When questions come up, we do not have to say, 'I am sorry we do not know.'"

In cooperation with experiment stations, Eastern States Farmers' Exchange, Cooperative G.L.F. Exchange, Inc., and the Pennsylvania Farm Bureau Cooperative Association, Inc. have engaged in many research investigations pertaining to placement of fertilizer, ploughing under of fertilizer, and application of increased amounts of plant food in established farm rotations.

Another aspect of industrial investigational work, closely related to business research, is the pioneer work in high analysis fertilizer conducted by Eastern States Farmers' Exchange. During the period 1923 to 1942 these efforts have been responsible for increasing total plant nutrient content in the mixed fertilizer handled by that association from 17.33 to 35.0 percent.

Research work also has been done by this association in regard to minor plant food elements. It reports that for certain deficiency areas in Massachusetts, Pennsylvania, and Delaware boron is added to fertilizers in line with findings of fertilizer investigations pertaining to the growing of legumes. Most associations have engaged in fertilizer investigations relating to such work as product analysis, conditioners, and storage. One association is experimenting with small interior mixing plants and reports that to its surprise very economical operations have been obtained by a plant mixing as little as 2,000 tons per year.

In 1940 seven regional purchasing associations, supplying fertilizer to farmers in approximately twenty States, established the Cooperative Fertilizer Research Bureau, located at Baltimore, Maryland. This organization has given particular attention to improvements in production equipment, formulation, use of minor elements, and research conducted by agricultural experiment stations and private suppliers.

It is reported that in the future, work of the Fertilizer Research Bureau may give attention to investigational work along such lines as (1) spreading equipment for lime and fertilizer, (2) bulk spreading of fertilizer for patrons, and (3) the blending of granular materials to the end that high analysis fertilizers can be placed on the market in a form better suited to farm needs.

In one or two instances regional purchasing cooperatives have worked out rather extensive research arrangements with private suppliers relative to the processing of fertilizer. One of these developments pertains to fertilizer cooling facilities. Investigations relating to the use of such equipment in the plant of one association were conducted jointly by the cooperative and one of its principal suppliers at a joint cost of \$12,000.

Another aspect of research conducted by purchasing regionals pertains to efforts to improve fertilizer bags so that they will maintain fertilizer condition and quality during longer periods of storage.

Based on recommendations from agricultural colleges, some of the regional purchasing associations are giving increased attention to the matter of roughage fertilization. This practice offers definite possibilities for improving the quality of hays and pastures with the further possibility of influencing the kind and character of grain supplements farmers following such practices are likely to require.

Closely related to fertilizer investigations are some of the experiments now being conducted by purchasing cooperatives with regard to rendering additional services for member patrons. One of these is the establishment of a lime and fertilizer spreading service pioneered by Cooperative G.L.F. Exchange, Inc. This type of service also has received special attention by Indiana Farm Bureau Cooperative Association, Inc. and Southern States Cooperative, Inc. Furthermore, thought has been given by some associations to the development and improvement of machinery for performing these services.

This work is conducted on a demonstration and experimental basis when first undertaken. Under such conditions, regional associations are prepared to absorb any losses that may occur when trials are made. The experience gained enables associations to profit from such "trial and error" operations, however, and to do a better job when such services are extended to other associations.

SEEDS¹⁵

Regional purchasing associations have given somewhat less attention to the matter of seed research than to feed and fertilizer investigations. However, during the past five years such associations as Eastern States Farmers' Exchange, Cooperative G.L.F. Exchange, Inc., and the Pennsylvania Farm Bureau Cooperative Association, Inc. have employed geneticists, plant breeders, or investigational workers full time in this important field.

Seeking answers to such general questions as what seeds should be purchased, how they should be planted, and what cultural practices should be followed, research workers have investigated the following matters: (1) varieties to select, soil and climate considered; (2) rates, time, and depth of planting; (3) fertilizer application and cultural practices; (4) disease resistance, and kinds and method of seed treatment; and (5) general inheritance factors for desired characteristics.

Pioneering research by regional purchasing associations was first undertaken by the Eastern States Farmers' Exchange when in 1936 it started a rather extensive seed development program. Particular stress was given to seed potatoes, although considerable attention also was given to improvement work with various other seeds.

¹⁵For a discussion of the seed purchasing activities of cooperative associations, see Hall, T. E. Cooperative Purchasing of Seed in Relation to Crop Production. Farm Credit Admin. Misc. Rpt. 74. 36 pp. 1944. (Processed.)

Constantly emphasizing their "value-in-use" philosophy, Eastern States Farmers' Exchange has made basic and fundamental contributions in the development of high quality seed potatoes.¹⁶ A significant feature of this program is the testing of all potato seed in Florida to determine the degree of freedom from disease. This is followed with the development of seed stock under special cultural practices that relate to production practices, furnishing seed to contract growers, and maintenance of vigorous disease and insect eradication programs.

As outlined by the Eastern States Farmers' Exchange, the functions of their plant industry project, as it applies to all kinds of seeds, are as follows:

1. A survey of plant material from world sources.
2. Trials of all Eastern States vegetable seed lots in distribution.
3. Breeding program for seed improvement.
4. Maintenance of stock seed.
5. Seed production for distribution.
6. Miscellaneous investigations relating to stand tests, chemical seed treatment; response to fertilizer placement and disease and insect control.

In some instances regional purchasing associations also have been active as pace-setters in some other fields of seed research. For instance, Pennsylvania Farm Bureau Cooperative Association, Inc. employed a plant breeder to give full time to hybrid seed corn development prior to the taking of similar action by the State agricultural college. These efforts have done much to establish and develop an effective hybrid corn program for farmers in the State.

Another significant development was the "Kem-Fee" process, a chemical scarifying process which reduces the proportion of hard seeds and thereby increases germination. It has been developed and patented by G.L.F.

Relationships in seed research with agricultural experiment stations also have been maintained. One association reports a budget of \$6,000 for seed and fertilizer grants for experiment station research. Eastern States Farmers' Exchange reported the following fellowships at land grant colleges: (1) Massachusetts State College - legumes; (2) Maine Experiment Station - potato stem-end browning; (3) Connecticut Experiment Station - hybrid corn; and (4) Pennsylvania State College - field crops. Similarly, a few other purchasing associations have maintained fellowships in seed production and related fields at selected State agricultural experiment stations from time to time.

¹⁶ In commenting on the "value-in-use" philosophy as applied to seeds, one official of the association stated that they soon discovered the error of attempting to buy the best seed as cheaply as possible because such bargaining resulted in a loss of good will on the part of producers with a consequent lowering of quality in the seed delivered. Such a practice was characterized as "hunting" rather than "creating" - the latter being the present policy of the association and one that seeks to establish programs designed to meet the needs of member patrons.

Other associations report such activities for seed improvement as selection, testing, variety and strain adaption investigations, and development of improved planting and harvesting machinery. Some associations report spending as long as two years testing the performance of various types of seeds before they believed they were justified in putting them on the market. Others have done but a minimum of research, operating largely on a "hunting and selling" basis.

Not unlike research with feeds and fertilizers, special programs by some regional purchasing organizations have contributed to improvement of seeds in the territories served. For instance, in 1944 the Atlantic Seed Stock Company was organized. This association primarily aims to produce foundation seed corn which is adapted to growing conditions in the eastern part of the United States. It comprises the following regional associations: Southern States Cooperative, Inc., Pennsylvania Farm Bureau Cooperative Association, Inc., Eastern States Farmers' Exchange, and Cooperative G.L.F. Exchange, Inc.

Studies for future consideration as stressed by personnel conducting seed research of regional purchasing associations include: (1) search for new varieties; (2) development of improved strains with maximum disease resistance and specifically adapted to selected areas of production; (3) maintenance of supplementary investigations that consider seed treatments, disease and insect control, and the influence of various cultural practices.

PETROLEUM PRODUCTS

A characteristic feature of research in petroleum operations as developed by purchasing cooperatives has been the establishment of numerous quality control laboratories for physical testing of products. Specific attention has been given to performing routine tests designed to determine quality. Officials of petroleum departments of these associations report that perhaps 85 percent of the work conducted relates strictly to tests for quality control.

As has been true for other items, there is a tendency for purchasing associations to undertake limited investigations in conjunction with quality control work. These efforts range from rather simple and incidental studies, often pertaining to related products or to the development of control techniques, to extended research dealing with lubricating oils and similar items.

The recent entrance of many regional purchasing associations into refinery operations has given these cooperatives both personnel and facilities which will enable them to give increased emphasis to research in gasoline and closely related products. The Consumers Cooperative Association, for instance, reports the employment of 40 chemists at their Coffeyville refinery where attention is given to development problems and to fundamental research. They also report work on the use of aviation gasoline to replace Tetra-Ethyl lead in the making of regular gasoline.

As early as 1933, Eastern States began experiments and studies to determine the types of motor oils giving the most economical lubrication. Through their Buffalo laboratory and in cooperation with research workers at other institutions, information was obtained to assist the association in obtaining the desired blend for oils. Attention also has been given the use of oil filters and the supplying of patrons with pertinent information regarding oil usage.

About 1935 the Farmers' Union Central Exchange, Consumers Cooperative Association, and the Illinois Farm Supply Company became interested in investigational work with tractors. Through collaboration with the research department of a large private business establishment emphasis on the relationship of the type of fuel used to tractor performance was instrumental in bringing about the shift toward high compression tractor engines and resulted in notable changes in the tractor design. More recently, research investigations by regional purchasing associations have been directed primarily toward such studies as additives for the "refortification" of lubricating oils, pour-points of oils, oil-blending, and performance of different types of oils and fuels as used under actual farm conditions.

A few purchasing associations have employed full-time employees to check on the performance of different kinds of petroleum products under actual farm conditions. Similar to fertilizer investigations, some of the activities undertaken have the characteristics of "trouble-shooting." In some instances associations have compared fuel and oil consumption of their own products with that of competitive products. Such findings are then related to overall performance and to condition of cylinders, pistons, valves, and bearings.

Some associations have adopted the policy of making tests on their own automobiles, trucks, other automotive equipment, and various kinds of machinery used. To this end, the performance of kinds and types of oils and fuels, tires, and similar products have been tested under actual operating conditions. The findings obtained have been closely checked and in many instances by changing specifications for products, or by going to the various suppliers, associations have been able to work out arrangements for improvement in the quality of items handled.

The Cooperative G.L.F. Exchange, Inc., in particular, has given a considerable amount of attention to such studies. This procedure furthermore has been used by associations as a guide in stocking many kinds of repair parts. The findings of laboratory investigations also have been used by associations to help them select the lines of petroleum products they wish to distribute.

One association reports that it has been working with a gasoline pump manufacturer in helping improve the features of this article so as to better serve farmers. Other associations are working with suppliers on improvements in delivery truck and tank design.

Those associations not having laboratory facilities for quality control report that they follow the practice of spotting a limited number of

bulk plants and run three or four tests a year through commercial laboratories on the products of these establishments. Some associations indicate that they rely rather extensively on the investigations in petroleum products which have been conducted at Pennsylvania State College. Others utilize the laboratory service of principal suppliers, commercial testing agencies, and State laboratories.

Closely related fields of investigation apply to the development of fly sprays, rust resistant products, and insect and disease control items derived from petroleum products. As is the situation with respect to other farm supplies, research in many instances has had a marked influence on improvement in the quality of products handled by suppliers.

FARM MACHINERY

Many features of research as applied to the farm machinery business of regional purchasing associations differ from the research efforts relating to the items previously considered. Much of the research is of an engineering nature. This naturally leads to following up on design development with actual testing under practical farm conditions.

Perhaps more important than any of the other problems facing regional purchasing cooperatives that handle farm machinery is that of knowing the types and models of machinery to handle. Two general approaches, neither of them entirely satisfactory, have been used in dealing with such problems. Representatives of the regional associations comprising the commodity committees of the National Farm Machinery Cooperative, Inc. offer suggestions and pass on specifications for the various lines of machinery distributed by that association. Another approach has been to sample farmer opinion as to the performance of various types of machines and to thus obtain suggestions of users for improving design and construction.

The Universal Milking Machine Company, a branch of the National Cooperatives, Inc., has given considerable attention to research work. A four-man engineering staff has worked full time on such considerations as designs, plans, and ideas of users. This has resulted in many improved features. Supplementing this was a survey among users designed to reveal strong and weak points in machines as well as the status of public acceptance.

Representatives of the National Farm Machinery Cooperative, Inc., in line with their belief that most new developments in farm machinery have been originated on farms by ingenious farmers, report that it would be highly advantageous for them to have a list of 3,000 farmers to be used in obtaining suggestions as to the type of machinery to handle and salient construction features relating to such machinery. The employment of competent and highly trained engineers also is contributing to possibilities for greatly improving the machinery that cooperative associations will place on the market. As a representative of one association stated, "There is little to be gained by going out and deliberately copying the styles of various machines placed on the market by some of our competitors." A constructive research approach calls for a three-fold

consideration including (1) improvement of existing machines, (2) development of new machines, and (3) testing the ideas advanced by farmers and machinery service agencies.

Of interest to regional purchasing associations from the standpoint of research in tractor performance and as a possible approach to other problems in farm machinery research is the work of the Department of Agricultural Engineering of the University of Nebraska.¹⁷ Research work was started in compliance with a law enacted in 1919 that provided for compulsory testing of all tractors offered for sale within the State. This development was occasioned by the dissatisfaction of Nebraska farmers with the early practice of selling tractors "as is" and of not providing the necessary facilities to properly service the tractors.

The Nebraska Tractor Law has as its stated purpose, "To encourage the manufacture and sale of improved types of tractors and to contribute to a more successful use of the tractor for farming." The three principal provisions of the law include:

1. A stock tractor of each model sold in the State must be tested and passed upon by a board of three engineers under State university management (items considered are belt tests, drawbar tests, and consumption of fuel, oil, and water).
2. Companies, dealers, and individuals who offer a tractor for sale in Nebraska must have a permit issued by the State Railway Commission.
3. A tractor service station with a complete supply of replacement parts of each model of tractor must be maintained within the State and within reasonable shipping distance of customers.

The tests conducted have been so satisfactory that other States have followed the findings of the Nebraska testing service. Furthermore, these investigations have been conducted on such an impartial basis that the confidence of practically all tractor manufacturers has been maintained. In fact, many tractor manufacturers as a consequence of their experiences with this service have developed their own tractor testing and proving facilities.

MISCELLANEOUS FARM AND HOUSEHOLD SUPPLIES

Except for conducting tests from time to time to determine compliance with specifications, little investigational work has been done by regional purchasing cooperatives in attempting to improve the quality of the various farm and household items handled. It is only in the past year or two that the Cooperative G.L.F. Exchange, Inc. and Southern States Cooperative, Inc. have established agricultural engineering conference boards to advise with them concerning the construction and

¹⁷For the Nebraska Tractor Law and the rules for conducting tests, see Chase, L. W. and others. The Nebraska Tractor Law and Rules for Official Tractor Tests. Nebr. State Agr. Expt. Sta. cir. 10. 14 pp. 1919. For results of conducting tractor tests see "The Nebraska Tractor Tests, 1920-41. Nebr. Agr. Expt. Sta. bul. 338. 51 pp. 1942

selection of such supplies. These efforts have been supplemented in a few instances by the employment of engineers to work on problems of product design.

In the winter of 1944-45 representatives of agricultural engineering departments from Cornell, Rutgers, and Pennsylvania State College met with representatives of the Cooperative G.L.F. Exchange, Inc. and drew up plans for the construction of a chick brooder that would be free of critical wartime materials. In less than a week plans for such brooders were available to members of that association.

Much research in farm and household supplies has related to the development of specifications for these products. Through patron surveys and by obtaining the views of representatives on the various commodity committees of National Cooperatives, Inc. it has been possible to develop specifications for many of these items. The Indiana Farm Bureau Cooperative Association, Inc. has established a "household advisory council" to assist it in getting the views of patrons relative to desirable features in household supplies.

The experience of many regional purchasing associations in the handling of miscellaneous farm and household supplies often has been far from satisfactory. Frequently they have introduced various products of old-line distributors and as soon as these lines of trade became well established, changes in the sales policies of such distributors often left the cooperative associations with no established lines of products. This placed them in the embarrassing position of going out and attempting to "sell" their members on the merits of lines that formerly were competitive. In other instances they have distributed products of manufacturers who are best characterized as "fly-by-night" operators handling items either of questionable quality or not well established in the trade. To help overcome such trade practices, the United Cooperatives, Inc. owns its own dies for poultry equipment although it contracts for the manufacture of these items. Besides controlling quality and design this practice gives the association greater bargaining power.

Perhaps the most extensive research work with miscellaneous farm supplies conducted by associations relates to paint, roofing, and fencing. It has been a common practice for a number of purchasing cooperatives to maintain paint fences on which to test performance of their own products and that of competitors. Investigations in roofing and fencing have done much to improve the quality of products now available to member patrons. Another investigation of special interest is the "one-coat paint studies" being conducted by United Cooperatives, Inc.

Some indication of efforts of purchasing regionals to sample patron preference is illustrated by a recent publication of the Cooperative G.L.F. Exchange, Inc., "What's Your Idea?" which seeks the views of member patrons about engineering features, matters of convenience, and costs as they pertain to electrical appliances and various other household items. Other associations have followed a somewhat similar approach with regard to miscellaneous farm supplies.

Purchasing associations also have utilized the services of certain governmental agencies, particularly the Bureau of Standards. Some of the associations with no facilities of their own for testing supplies have utilized the services of other governmental agencies and commercial laboratories. For instance, one association reports that it sent samples of its paint formulas and the formulas of various national and chain store paint manufacturers to such establishments as the Forest Products Laboratory, the Bureau of Standards, selected State testing agencies, and commercial laboratories to get suggestions on merits of the formulas presented.

Other services that may be performed by regional purchasing cooperatives relate to such supplementary activities as building milk houses and constructing various types of farm buildings. Associations have expressed the view that because of the advantages of employing trained construction workers and in utilizing their ability to give worthwhile advice as to the type and nature of building needs, they are in position to render appreciable service for member patrons. It seems evident that to be effective these services will depend upon research relating to such considerations as types of building that are needed, proper construction procedure, and materials to use.

BUSINESS RESEARCH ACTIVITIES OF FARMERS' REGIONAL PURCHASING ASSOCIATIONS

Business research efforts of farmers' regional purchasing associations are closely associated with efficiency in operating performance. In fact, the attainment of efficiency is of special interest to members of these cooperatives because gains in operations are reflected to them in one or more of such considerations as lower prices, improved service, and better quality of products.¹⁸

In general, business research has been conducted within operating departments of regional purchasing associations rather than through the formal departments. Under these conditions the studies conducted have taken the form more or less of "spot surveys" that deal with particular aspects of special problems. In many instances these studies have been made by people having no special training in business research, and consequently have been restricted largely to a "fact-finding" approach.

However, the Cooperative G.L.F. Exchange, Inc., Pennsylvania Farm Bureau Cooperative Association, Inc., and Missouri Farmers Association, through the establishment of research departments to consider economic problems, recently have given formal consideration to business research. In actual practice, regional purchasing associations have devoted major attention to the following types of business studies: (1) manufacturing and production, (2) purchasing, (3) distribution, (4) membership relations, (5) financial structure and credit, (6) traffic, (7) marketing, (8) general economic trends, and (9) personnel.

MANUFACTURING AND PRODUCTION

Industrial research personnel, whether employed by associations or by consulting engineering firms serving cooperatives on problems of plant location, construction, and operation often have given consideration to business investigations relating to operations as well as to purely technical research. In most instances, these problems emphasize the need for considerable production data. Of special interest is information relating to low and high peaks in manufacturing loads, seasonable distribution, and cost of various processing methods.

To obtain such information and use it effectively often calls for the combined services of well trained industrial research men and business analysts. Frequently, traffic men of purchasing regionals have been of assistance in such matters as rate structure and site selection. Persons familiar with distribution and purchasing problems have been called in at times to conduct investigations on sources of supplies, points of distribution, and prospective demand.

A number of purchasing regionals, particularly, National Cooperatives, Inc., Central Cooperative Wholesale, (Ohio) Farm Bureau Cooperative

¹⁸For a discussion of business operations of principal purchasing associations see Knapp, J. G., and Searce, J. L. Handbook on Major Regional Farm Supply Purchasing Cooperatives 1943 and 1944. Farm Credit Admin. Misc. Rpt. 89. 45 pp. 1945.

Association, and Cooperative G.L.F. Exchange, Inc., recently have employed engineers, architects, or planning divisions to assist member units in various aspects of engineering operations. Such developments often have resulted because of the need for greater operating efficiency and important activities relate to drawing up plans for operating facilities, advising on the installation of machinery and, in some instances, taking an influential part in making overall plans for the joint ownership of facilities by several local associations - purchasing and marketing.

Economic aspects of manufacturing and processing also have definite implications from the standpoint of policy determination. The influence of rapidly changing technical developments and the consequent danger of obsolescence in various manufacturing processes are problems that require evaluation by research personnel. So far, associations have given little attention to such problems.¹⁹

The influence of such factors as purchasing power in the hands of patrons, change in the kinds of products that are likely to be desired, and feasibility of distributing products of firms already established, all suggest the desirability of giving careful consideration to the varied implications involved in the expansion of manufacturing by purchasing cooperatives. Such matters as the elimination of wide seasonable fluctuations in manufacturing, determination of depreciation rates for machinery, and proper allocation of joint costs under various methods of operation also are among the problems associated with manufacturing that lend themselves to further research before associations are in position to establish sound policies with regard to manufacturing and production.

PURCHASING OF SUPPLIES

Regional purchasing cooperatives have given considerable attention to problems associated with the purchasing of supplies. It is somewhat difficult, however, to determine the extent to which the policies followed have been influenced by careful investigations as to prevailing price structure, quality of products available, and nature of demand by farmer patrons. Neither is it possible to ascertain the extent to which personal friendships have directed business relationships and the degree to which mere opinions of officials have entered into supply selection.

Indications are, however, that price comparisons often have served as the primary basis for selecting lines of products. Some officials report that price consciousness has not always permitted adequate consideration of quality and service factors. In any event, it seems certain that the direction of much of the research work in the purchase of supplies will depend upon the importance attached by management to evaluating the demands and needs of patrons and to showing economy in operations.

¹⁹Many private business concerns have given very careful consideration to many of the economic questions relating to manufacturing facilities. Some of these investigations require both industrial and business research. They have concerned such factors as determining the size and type of machinery to install, deciding upon the size and the dimensions of plants, evaluating arrangements for production and assembly lines, and estimating and budgeting costs for proposed methods of operation.

Because of changes occasioned by war, some suppliers were no longer interested in furnishing the products desired by associations. Others, in contrast, as they turn from war production will be interested in establishing business relations with cooperatives. Therefore, objectiveness with regard to such matters as economy and quality is essential if the most effective purchasing policies are to be established in the highly competitive postwar era. Procurement problems of one association were well summarized by an official when he said, "Our trouble is getting into lines before we investigate them." This indicates a common tendency of acting without obtaining facts or without interpreting them properly.

The importance of associations' getting adequate information regarding operations is well stated by the research director of an association who reported that the production man of one of its mills guessed at prospective output for the coming month during a feed conference. In contrast, a well balanced research program would permit an association to give consideration to such items as the influence of seasonal factors, general price information, sources and supply of ingredients, and likely demand in arriving at an estimate of mill production. With such information it would no longer be necessary to rely upon the guess of any one individual no matter how competent he might be.

To assist in the establishment of an effective purchasing policy the Cooperative G.L.F. Exchange has conducted an "Audit of Goods." Special attention was given to getting farmers' views as to price, quality, and results obtained from the use of the various products supplied to its patrons.

Several associations have given thought to economic aspects of supplying groceries and other consumer goods in conjunction with a general farm supply business. In most instances these studies have not gone into detailed consideration of the many economic implications of the questions involved in such operations. National Cooperatives, Inc., together with some of the principal regional purchasing associations handling such products, however, have given some attention to methods of developing local trade, display techniques, place of super service agencies, influence of location on efficient operation, and procurement practices.

In two or three instances associations have developed "pantry testing laboratories" to sample various grocery items handled. Other associations have expressed an interest in similar techniques as a guide to policy determination. Not unlike general features of the regional farm supply business, some of the problems related to establishment of efficient consumer goods departments center about such matters as financing, administrative organization, and determination of the economic basis for adding such products.

Other purchasing problems of regionals relate to such items as the place of joint plant operation, proper location of warehouses, inventory control, types of goods to handle, and establishment of definite purchasing

policies. That this field has many possibilities for development is indicated by an official of one association who reported, "The field of purchasing research is wide open. Too many of us have been operating on a hand-to-mouth basis."

DISTRIBUTION

Large-scale regional purchasing cooperatives depend upon effective distribution for the development and maintenance of efficient operations. To this end, numerous types of business establishments, ranging from private retailers to local cooperative associations - both purchasing and marketing - and including a large number of closely affiliated or branch units of regionals, have served as agencies for distributing farm supplies.

Consequently, associations have conducted numerous studies to improve distribution practices and to serve as "measuring sticks" for checking the performance of distribution agencies serving them. Many associations rely rather extensively upon the audits prepared by their own accounting departments. Several associations prepare yearly comparisons for both their own use and that of the local distributive agencies dealing with them on operating costs, financial status, volume of business handled, and closely related items. Comparative statements often classify distributive agencies as to size, type of products handled, and method of distribution.

Similarly, some of the larger purchasing associations have established comparisons of performance with those of other regionals. In both instances, whether applied to wholesale regionals or local units, adequate comparisons for evaluating efficiency of operations is essential for effective operations. One of the major difficulties of setting up and using such comparisons is the lack of uniform terminology and wide variation in accounting procedures.²⁰

Representative of some of the studies relating to the performance of distributive agencies are investigations conducted by the Illinois Farm Supply Company. Through effective control factors in its accounting system it is in position to compare the operating performance of member units. They are classified as to size and the various expense items and measures of financial condition are compared with averages for size classes. The Farmers Union Central Exchange, Midland Cooperative Wholesale, Southern States Cooperative, Inc., and Consumers Cooperative Association have stressed similar efficiency investigations. The Cooperative G.L.F. Exchange, Inc., in addition to its more extensive research program, reports that its system of maintaining internal control is one of its strong operating features. Central Cooperative Wholesale has prepared a business analysis for 25 typical rural member units and 10 typical city units.

Another example of how studies of distribution have been undertaken to the advantage of purchasing cooperatives was an investigation made of

²⁰For a discussion of suggested terminology, see Bradley, W. L. Terminology and Forms of Financial Statements for Cooperatives. Journal of Accountancy. Apr. 1945. 79:304-12.

its own feed distribution operations by the Illinois Farm Supply Company. Dissatisfied with the development of its feed business this association discovered through its investigations that part of the difficulty related to the caliber and types of distributive agencies used. As a result, many local distributors were discontinued and the association adopted a program for the extensive distribution of feed by truck. This had the advantage of bringing the association into regular contact with patrons and has helped to establish a permanent relationship that, coupled with better service, has contributed to a significant increase in volume of business.

An interesting development along distribution lines, previously referred to, is experimentation with the organization of joint cooperative facilities on a trading area or county basis pioneered by G.L.F. and the (Ohio) Farm Bureau Cooperative Association. Emphasis by the Farm Bureau largely has been on engineering aspects of the construction of facilities. The G.L.F., in turn, has placed special stress on the economic problems associated with the establishment of such facilities.

Notwithstanding the progress that has been made in the distribution of farm supplies there are possibilities for many additional investigations. As an official of one association said, "We need to know what the farmer wants and what he thinks of the supplies distributed if we are to distribute effectively."

In general, officials of purchasing cooperatives report that major distribution problems lending themselves to research include the following:

1. Determination of the kinds and quality of products that can be handled to advantage.
2. Place of groceries and other consumer goods in the distribution of farm supplies.
3. Development of efficiency standards to serve as a basis for checking effective distribution.
4. Credit policies.
5. Size of operating territory.
6. Place of truck routes.
7. Nature and location of manufacturing plants and warehouses for supplies distributed by associations.
8. New lines of service.
9. Marketing of products grown by member farmers.

ADMINISTRATION AND POLICY DETERMINATION

The rapid growth of regional purchasing associations since 1920 has not permitted adequate attention to matters pertaining to administrative

organization or reorganization. As a consequence, the need for maintaining clear lines of administrative responsibility recently has received the consideration of both managers and directors. It is only since 1940, however, that it has been commonly recognized that studies of problems relating to administrative organization could be helpful in remedying some of the difficulties that now exist.

The Central Cooperative Wholesale has reorganized its operations to clear through three major divisions - (1) education, (2) operations (buying, selling, and manufacturing), and (3) general business (accounting and auditing, general office, personnel, and public relations). While not following the same plans, Consumers Cooperative Association, Midland Cooperative Wholesale, and (Ohio) Farm Bureau Cooperative Association, Inc. also have given attention to possibilities and problems in administrative reorganization. Such problems were studied by the Cooperative G.L.F. Exchange, Inc. some years back.

Some cooperative purchasing associations have established administration along functional lines - manufacturing, procurement, purchasing, distribution, finance, credit, etc. Others have organized primarily along commodity lines - feed, seed, fertilizer, petroleum products, farm machinery, marketing, etc. In a few instances a combination of both types of administrative organization has been worked out. Careful study of the advantages and disadvantages of these two methods, however, is necessary before associations are in position to pass on the merits of each as applied to their own particular operating conditions. A closely related problem is that of determining the status within an association of such departments as personnel, traffic, and research. Further analysis subsequently will be given to this problem. To operate effectively and to render maximum service it should be stressed that these departments need the same status accorded major operating departments.

The nature and scope of studies of policy determination that lend themselves to further investigations are many and varied. It may be to the advantage of purchasing cooperatives to consider the experience of private establishments in this respect. The National Resources Planning Board reports that such factors as methods of expansion, selection of commodities to handle, expansion of trade territory, and relation of these items to general economic trends are given careful consideration by these companies as they relate to matters of policy determination. These and related items also are of interest to purchasing cooperatives. For instance, some thought has been given to such problems as the place and possibilities of fellowship grants to universities, possibilities of adding sideline enterprises, opportunities in conducting joint investigations with purchasing regionals and other research agencies, and advantages of reorganization and consolidation. These matters are so important that they deserve the serious attention of regional purchasing cooperatives.

MEMBERSHIP RELATIONS

Problems associated with maintaining effective membership relations have become more complicated as purchasing cooperatives have developed into

large-scale business agencies. Under these conditions it is no longer possible to establish first-hand relationships with many widely scattered patrons. The fact that patrons are often far removed from central offices and have little or no occasion to become acquainted with officials suggests that special emphasis needs to be given to initiation of sound programs for the development and maintenance of membership relations.

Two associations, the Cooperative G.L.F. Exchange, Inc. and Southern States Cooperative, Inc., have undertaken studies for the purpose of obtaining basic information to serve as a background for expanding work in membership relations. With the assistance of Cornell University the Cooperative G.L.F. Exchange, Inc. has completed a study of an "Audit of Farmers' Attitudes." This study was directed primarily toward three considerations: (1) to discover the general cooperative philosophy of farmers, (2) to find to what extent farmers feel that G.L.F. belongs to them, and (3) to get a cross section of farmers' thinking of G.L.F. financing. Southern States also has completed a "Survey of Farmers' Opinions and Knowledge of Southern States Cooperative."

The study conducted by G.L.F. sought answers to such considerations as farmers' views on the need for cooperation, accomplishments possible through cooperative effort, and opinions as to whether or not farmers felt they should buy through their cooperative if they could get comparable items cheaper elsewhere.²¹ Other aspects of this study dealt with the extent to which membership felt that the central association belonged to them, evaluation of services performed by G.L.F., and views toward possible expansion in cooperative activity. Likewise, an attempt was made to appraise the views of farmers regarding their financial interest in the association.

The study conducted by Southern States specifically applied to operations of that association and gave attention to such matters as attitude of farmers toward the products distributed, opinions as to the nature of membership meetings held, views toward prevailing methods of supplying information and conducting elections, and possibilities for improvement in service.

Studies of this nature present associations with opportunities for obtaining first-hand information to serve as a basis for improving membership relations. It should be emphasized, however, that they require a great deal of thought and planning if they are to be conducted in a manner that will furnish accurate information and sound conclusions upon which to base policies for developing work in membership relations. Great care needs to be taken in securing a representative sample, in wording questions in such a way as to avoid influencing the answers, and in training interviewers to appreciate the importance of an objective approach to the types of studies undertaken.

²¹That the association undertook this study with an objective view is indicated by the fact that in a booklet describing this study, "What's the Boss Thinking?" the first sentence reads: "Within G.L.F. circles there is much conjecture but little knowledge about the attitude of farmers in G.L.F. territory toward cooperation in general, and G.L.F. in particular."

Membership studies have proven of such significance that they have been submitted to general management with the recommendation that findings be put into immediate operation to bring about modifications and adjustments in operating policies.

FINANCIAL STRUCTURE AND CREDIT

The financial structure of regional purchasing associations, not unlike other cooperatives, is influenced by cooperative laws under which these associations are organized. Within the provisions of these laws, however, a wide latitude exists and many modifications in types of financial structure have developed. While some purchasing regionals have given attention to problems of financial structure, they have not always been in position to approach them along lines of approved research procedure. Frequently such matters have been left in the hands of legal advisers, financial officials, or persons in similar capacity. As a consequence, associations often have not been able to give these matters sufficient attention to best serve the interests of member patrons. Officials report that of particular interest as items for future study are problems related to the establishment of revolving fund methods of financing and the legal status of reserves and surplus.

Reference has been made to the fact that many types of financial analyses have entered into research work of purchasing cooperatives. This serves to re-emphasize the likelihood of close relationships existing between various types of business investigations. Through the study of audits, comparative reports, and financial statements, many associations have kept close control on credit and have helped local units to maintain desirable operation ratios. The services of qualified personnel in business research also would be very helpful in obtaining more complete analysis of financial statements and in devising procedures for more effective control of credit.

A study of credit costs of the Farmers Union Central Exchange, Inc. had an important bearing upon the credit policies of that association. Findings of this study revealed that 12-1/2 percent of the credit extended by its local affiliates was lost and consequently policies were adopted to tighten up on credit practices. The Consumers Cooperative Association reports that a study of credit practices conducted by the Purchasing Section of the Cooperative Research and Service Division has been helpful in enabling that association to deal more effectively with its credit problems.

Other associations are giving consideration to operating budgets; improved accounting procedure; monthly operating statements and provisions for commodity control; development of effective accounting guides; establishment of operating comparisons for regional associations; inauguration of auditing services for local units; and determination of the best methods for informing affiliated units, local officials, and members of the financial status of an association.

Officials of regional purchasing associations have indicated that the following studies would be helpful in improving the financial status of these cooperatives:

1. Determination of credit standards prevailing in new or contemplated lines of business.
2. Methods of breaking down established trade practices that are ill suited to the cooperative way of doing business, and a determination of the type of practices that should be adopted.
3. Development of uniform accounting procedure.
4. Protection of patronage capital, giving consideration to organization and accounting procedure.
5. Improved means of financial organization.

TRAFFIC

As regional purchasing cooperatives have developed into large-scale business establishments that undertake manufacturing and processing of an appreciable amount of the products they distribute, the importance of effectively handling many problems relating to traffic has been demonstrated in a number of ways. The primary purpose of a traffic department is to keep supplies moving both into and out of the various facilities and agencies which associations have set up to manufacture, process, and distribute products. These operations have served to bring to the attention of purchasing regionals recognition of the necessity for negotiation with transportation agencies on matters pertaining to freight rates and other aspects of traffic problems. Traffic departments also have been of assistance in helping local units increase efficiency of trucking operations.

To effectively carry on negotiations with transportation agencies it is important for purchasing cooperatives to assemble and have available a great deal of information and data pertaining to the many specific problems relating to rates and rate adjustments. The assembling of such facts also can be helpful in any litigation work that may arise and in various phases of rate legislation. To assist in handling transportation problems many associations have established traffic departments.

The services of the Transportation Section of the Cooperative Research and Service Division, Farm Credit Administration, have been requested by some associations for specific traffic studies. Smaller associations often use private transportation agencies with which they clear various traffic problems. Other cooperatives have adopted the policy of auditing freight bills with private freight auditing establishments.

Most important in the many phases of traffic investigations of special interest to purchasing cooperatives are:

1. Location of various types of plants - either private plants already constructed that an association may contemplate purchasing

or new plants an association may establish - giving special attention to costs, possibilities for improvement in traffic services, real estate value, and labor supply.

2. Economies and possibilities of various types of transportation with consideration of the nature of the territory served and the kinds of products handled.
3. Negotiations with transportation agencies as to rate structure.
4. Possible improvement in performance of transportation and delivery service and in the operations of distributive agencies.
5. The relation of freight rate structure to the establishment of business relations with suppliers.
6. Pipeline and barge facilities.

Traffic investigations by purchasing cooperatives have given solutions to certain specific operating problems confronting associations. After a study of its trucking operations the Farmers Union Central Exchange, Inc., for instance, discontinued the ownership of its fleet of trucks and replaced them with private contract haulers.

As traffic departments of many of the larger regional purchasing cooperatives expand the nature and scope of their activities they may find reason to give attention to a wide variety of problems that relate to their particular operations. The wide scope of these problems is illustrated by the efforts of the traffic department of the Cooperative G.L.F. Exchange, Inc. The director of this department reports that some of the department's most useful work relates to assembling information and data for immediate or eventual use on such problems as:

1. Box-car supply.
2. Possibilities for utilizing new transportation facilities, for instance, shallow-draft boats and hopper bottom cars for bulk grain.
3. Car design.
4. Rate studies for such relatively new products as citrus pulp, dried distillers' grains, urea, and similar products.
5. Consolidation of pool shipments for motor truck, rail, and boat transportation.
6. Railroad abandonment.
7. Air cargo transportation.
8. Obtaining information with respect to various Congressional hearings applying to freight rate structures.

MARKETING

Many regional purchasing cooperatives have been engaged in marketing a wide variety of farm products for a number of years. This trend was accentuated by the depression of the early 1930's. At that time the necessity for greater efficiency in market distribution was emphasized and in response to demands of member patrons new outlets were sought, and in several instances developed, for many kinds of farm products. Such efforts applied particularly to many miscellaneous farm products for which no effective marketing machinery had previously been established. These products, nevertheless, were of local significance and often were closely related to many aspects of the farm supply business. The fact that purchasing associations, by expanding their fields of activity, were handling an increased number of products related to various items of farm production further contributed to the interest of patrons in having associations enter the field of marketing.

During the last decade these developments have resulted in purchasing cooperatives giving increased attention to the marketing of such farm products as eggs and poultry, certain fruits and vegetables, wool, and field grains and seeds. In some communities other and more specialized products have been marketed.

In connection with marketing efforts, purchasing associations have made studies designed to improve business operations associated with these activities. For instance, when the Cooperative G.L.F. Exchange, Inc. entered the egg marketing field it was instrumental in having Cornell University and the State Department of Agriculture conduct investigations to assist in the establishment of market grades for eggs. Findings of this study also were used in determining the general operating policies of the egg marketing divisions of the association. Other cooperatives have studied possibilities of coordinating transportation activities so that farm supply and marketing activities can be carried out more economically.

Some associations report that about as far as they have gone has been to visit successful marketing establishments, cooperative or private, and then attempt to make applications from these observations. Not unlike many operational aspects related to various farm supply operations, marketing activities of regional purchasing associations also have given attention to financing, administration, and distribution studies.

Private industrial establishments indicate that their emphasis in marketing research has been on (1) channels of trade for efficient distribution; (2) territory potentials, giving consideration to capacities of various regions for producing and handling diverse types of products; and (3) consumer preference for trade items.

Knowledge of such facts as they relate to marketing efforts of regional purchasing associations also applies to the operations of cooperatives.

Officials of regional purchasing associations report that studies are needed on:

1. Storage, particularly as it pertains to marketing operations.

2. All phases of price problems.
3. Kinds of market outlets.
4. General relationships of marketing operations to purchasing, giving consideration to types of marketing activities that supplement or complement purchasing endeavors.
5. The place of related services such as locker plants in the development of an effective marketing program.

GENERAL ECONOMIC TRENDS

Regional purchasing associations have given but minimum consideration to research in general economic trends. To the extent that they have expressed an interest in these efforts and have attempted to apply them to their business operations, they usually have relied upon State and Federal agencies to assist in assembling and interpreting pertinent information. Associations also have supplemented these findings with reports from business services and such organizations as the National Council of Farmer Cooperatives, the American Institute of Cooperation, and the Cooperative League. There is reason to believe that in many instances these agencies have exerted appreciable influence in the policy determination of purchasing regionals.

Helpful as are the various reports and services of these agencies they do not always relate to specific problems these associations face. As a result, questions frequently arise as to types of action associations should pursue in order to obtain better general economic information to apply to their particular operations. The extent to which these undertakings should be conducted directly by purchasing associations or by other agencies is a matter which will receive subsequent consideration in this report. To the extent that specific problems of regional purchasing associations require establishment of a special body of data pertaining to their particular operations they may desire to conduct certain studies of a general economic nature on a joint basis with other associations or to rely on the efforts of established research agencies.²²

PERSONNEL

Research pertaining to problems of personnel management is a relatively new development with cooperative purchasing associations. Except for the efforts of Cooperative G.L.F. Exchange, Inc., (Ohio) Farm Bureau Cooperative Association, Inc., Consumers Cooperative Association, Midland Cooperative Wholesale, and Pennsylvania Farm Bureau Cooperative

²²Some of the larger private business establishments are conducting an appreciable amount of basic investigational work related to general economic trends many of which have direct application to purchasing regionals. These efforts have given major consideration to:

1. Price changes over a period of years.
2. Changes in the overall relationships of general price levels.
3. Forecasts pertaining to price trends and consumer purchasing power.
4. Establishment of business indices, particularly for the various commodities handled.
5. Detailed studies of interest rates, tax problems, and business relations as applied to agencies of government.

Association, Inc., little formal attention has been given to this type of research. That the growing importance of personnel work is recognized, however, is suggested by the fact that other purchasing associations are contemplating the establishment of personnel departments as soon as war-time emergencies can be surmounted.

Associations with personnel departments report that research efforts have been directed toward studying problems of labor relations, job classification, retirement plans, promotions, insurance, union employee relationships, employee training, personnel counseling, and selective service. Other associations have indicated that methods of paying employees are closely tied to personnel relations and should receive careful study. In occasional instances preliminary studies also have been made on attitude tests of individuals relative to employment, interview impressions, and investigation of employer-employee relationships.

That further consideration of personnel problems is needed by cooperative associations was well emphasized by one individual. He stated that it took the cooperative for which he was working a long time to learn that newly hired county agents, in spite of their agricultural background, do not necessarily make good men for assuming responsible positions in the distribution of specialized products or in jobs in which they have no special training.

Experience of other purchasing cooperatives with problems of relatively rapid turnover in personnel, disturbing labor relationships, and maintaining equitable salary schedules serve to emphasize the importance of establishing effective personnel departments to work with and study such problems. Officials of purchasing associations report that personnel problems worthy of further study include:

1. Improvement of personnel relations with local member associations.
2. Establishment of effective personnel training programs.
3. Setting up proper salary schedules.
4. Study of private trade practices as compared with cooperative trade practices.

AN APPRAISAL: RESEARCH - A COMPETITIVE NECESSITY

Discussion in the two preceding sections has called attention to the character of industrial and business research work undertaken by farmers regional purchasing associations. While accomplishments have been notable and although interest has been growing, these associations as a rule have lagged behind private business agencies in making effective use of the contributions of research. Indications are that increased attention to research is a necessity if cooperatives are to maintain the role of "pacesetters." This view is substantiated by Chris I. Christensen,

who, as Dean of the College of Agriculture of the University of Wisconsin, emphasized the desirability of rooting cooperative endeavor in a program of research and education by stating:²³

"I think we will all agree that cooperatives, as a whole, have been slow in developing research programs of their own and in some cases also in making the fullest use of research findings that have come out of public institutions, such as the Farm Credit Administration and the United States Department of Agriculture and in our State agricultural experiment stations and universities. May I draw an example again from the dairy industry where cooperation is extensively developed.

"Would it not be a fine thing for the cooperative movement if the dairy cooperatives had promoted and developed the recent findings with respect to the improved methods of manufacture and use of casein? Would it not have been a fine thing for the cooperatives and probably for the dairy industry itself had the developments and patents with respect to processing of cheese been in the hands of farmers' cooperative associations? Would it not have been a real boon to agricultural cooperation if the fundamental research and findings with respect to improving the nutritive value of milk, as well as other food products, could have been pioneered commercially in cooperative laboratories and operating plants?

"With the large volume of new information coming out of the publicly supported research laboratories, such as the State agricultural experiment stations, there is large opportunity for the alert cooperative organization to have on its staff research-minded men who can closely follow the new research developments and adapt them to the needs and use of the cooperatives. From the business end itself might not cooperatives employ research to advantage in studying and testing their various business policies and operating costs?"

²³Christensen, C. L. A Look Ahead for the Cooperative Movement. Amer. Inst. of Cooperation. American Cooperation. 1938. pp. 61-72.

BASIC CONSIDERATIONS IN ESTABLISHING EFFECTIVE RESEARCH PROGRAMS

Since much of the research work conducted by regional purchasing associations is in a highly formative state, consideration of basic questions relative to the establishment of effective research programs is timely. The more important of these questions follow:

1. To what extent should joint research arrangements be established?
2. Should the research function be centralized or decentralized?
3. What should be the relationship of industrial and business research in the organization of research departments?
4. What plans should be adopted for selecting personnel, adding facilities, and setting up budgets for conducting research?
5. What should be the responsibilities of managers and research directors in developing effective research programs?
6. How should plans for research be initiated?
7. To what extent should associations engage in fundamental (pure or basic) research?
8. To what extent should associations distinguish between practical and theoretical research?
9. How should research findings be presented?
10. What problems are associated with maintaining objectivity on the part of a research department?

TO WHAT EXTENT SHOULD JOINT RESEARCH ARRANGEMENTS BE ESTABLISHED?

The problems associated with developing effective research arrangements with other investigational agencies introduce many complex factors for the consideration of management. The extent to which existing research arrangements are the result of carefully thought out policies as contrasted with developments growing out of chance is not easy to determine. Experience has demonstrated, however, that careful attention needs to be given to research plans if the most advantageous use is to be made of many kinds of research agencies that are in position to serve purchasing associations and, through them, farmer-members.

Problems in developing joint research arrangements are discussed in this section as they relate to: (1) other purchasing regionals, (2) State and Federal agencies, (3) private suppliers, and (4) commercial research concerns.

1. Other purchasing regionals. Even though purchasing associations have different business associates in varied lines of activity, a number

of officials have expressed the view that joint research agencies might be developed to undertake necessary studies. In this connection the activities of the American Farm Research Association and the Cooperative Fertilizer Bureau in the dissemination of pertinent information have been referred to. In other instances, associations have shared notes and compared experiences on an informal basis for many commodities handled and about many operating problems.

It is indicated that joint research programs could be developed which would be sufficiently flexible in nature and which would advantageously provide for some of the more general investigational needs of member associations. This particularly applies to such commodities as feeds, seeds, fertilizers, and farm machinery, where considerable duplication in industrial research effort might be eliminated through effective arrangements for joint action on the part of regionals. For instance, this action could take such forms as establishing necessary research facilities and employment of needed personnel on a joint basis, granting research fellowships to selected colleges to conduct investigations of general interest to several associations, and - depending upon the qualifications of research personnel - allocation or "farming out" of special phases of research problems to individual associations.

As a general rule, there seems to be definite agreement that purchasing associations should not engage in investigational work on either an independent or joint basis that in any way duplicates work of State and Federal research agencies in position to serve them. Greater efficiency and more complete coverage of certain research problems could result from increasing the responsibilities of joint research agencies already organized by purchasing regionals or, in some instances, by establishing new joint research departments. In other instances, associations may be able to give more attention to working out plans for exchange of specially qualified research personnel with other cooperatives to conduct specialized studies.

2. State and Federal agencies. The degree to which cooperative purchasing associations may utilize the research services of State and Federal agencies effectively depends upon such factors as (1) extent to which personnel of these agencies are qualified to assist associations, (2) administrative policy of these agencies toward working with cooperative associations, and (3) appreciation on the part of management of purchasing associations of the types of research services available.

In some instances there has been a tendency for purchasing regionals to assume an attitude of militant independence and complacency and to turn away from these research agencies. This attitude, however, is less prevalent than formerly. With increasing appreciation of the nature of assistance available through State and Federal research efforts this tendency will lose its significance as a factor in retarding the development of research relationships with purchasing cooperatives.

Officials of both State and Federal agencies have expressed the view that the research services they have been in a position to render often are not being fully utilized. In many instances there have been but few

direct requests from purchasing associations for assistance. Furthermore, insufficient funds and limited personnel have especially hampered experiment stations at land grant colleges in their efforts to render direct assistance to purchasing associations. In the fields of business research, for example, some of these institutions do not have personnel with first-hand training and experience in operations of purchasing regionals. Purchasing cooperatives also are of more recent origin than many of the older and more entrenched marketing associations. Thus, it has not always been possible for them to compete effectively for the time of limited personnel working on cooperative problems. Another situation limiting the use of colleges is the fact that some of the problems confronting purchasing associations have not been considered or even recognized until they demand immediate answers. This has necessitated that studies be undertaken and findings made available on such short notice that it has not always been possible to utilize outside research agencies.

The degree to which regional purchasing cooperatives may effectively use research services of agricultural colleges also is often determined by location within a State. Where colleges and main offices of purchasing associations are located in the same town it is natural to expect closer research relationships to be maintained than when they are separated by distances of hundreds of miles.

Other aspects of location also influence possibilities of associations' adequately utilizing the research services of colleges. Some regionals operate over a wide territory, in two instances including regions comprising nine States. Under these conditions ability to work out arrangements to effectively use individual colleges in over-all research problems often is limited. It is in instances of this nature, as well as for more specific studies, that the research services of the Purchasing Section of the Cooperative Research and Service Division often have been specifically requested by purchasing regionals. It is of course true that when proper arrangements can be made the fact that some regionals operate in several States affords the advantage of utilizing the services of many different colleges and so benefiting from the variety of work several colleges may be prepared to offer and from the varied experience of personnel.

In general, it can be said that purchasing associations can make greater use of the research studies of State and Federal research agencies. It may be necessary, however, to encourage and to stimulate the interest of some institutions in giving more emphasis to such work. The establishment of close research relationships with State and Federal agencies will do much to assist purchasing associations to avoid duplication in research efforts, develop appreciation of the help obtainable through these agencies, and contribute toward a better understanding of achievements possible through establishment of their own research departments.

3. Private suppliers. Depending upon qualifications of individual suppliers for conducting research and upon the nature of items to be studied, regional purchasing associations from time to time have arranged for

private companies to undertake research on some of the products they handle. These efforts often have proven very beneficial and officials of purchasing cooperatives indicate that in all likelihood they will be expanded during postwar years. It should be recognized, however, that helpful as such arrangements are for specific problems with certain commodities they do not constitute the type of arrangement around which aggressive cooperative purchasing associations can develop effective and well-balanced research programs.

The services of private suppliers are likely to be used most extensively by the smaller associations - those that have but little, or at best, limited research facilities and often are short of trained or experienced personnel. In other words, they are likely to serve as a supplemental type of research.

4. Commercial research agencies. Officials of cooperative purchasing associations report that at times they have used the services of commercial research agencies in conducting a limited amount of research. They emphasize, however, that general policy has been to use commercial agencies only for specific problems for which they do not have the personnel or facilities to conduct an adequate research job. In some instances private research agencies also have been used to evaluate performance of research conducted by an association or by their own or other research organizations. There has been a tendency on the part of some associations to question the ability of these agencies to adjust their methods of operation to evaluating the business performance of cooperative associations.²⁴

Consideration of the place for joint research programs by purchasing regionals leads to the following observations:

1. From time to time associations will find it to their advantage to conduct special research problems through private suppliers and commercial research agencies.
2. Broader aspects of more fundamental research may be conducted by State and Federal agencies and, in some instances, on a joint basis with other regionals.
3. In addition, however, there is still a place for research workers on the staffs of individual purchasing regionals to consider applied and, at times, fundamental research problems, and to function as liaison officials with other research agencies.

A majority of the managers of purchasing regionals expressed the opinion that there was a definite place in their organization for both industrial and business research. Some, however, questioned whether the scope of

²⁴In some instances the performance of commercial research agencies has created some dissatisfaction. For example, in a \$15,000 study of consumer response in 92 cities by one commercial research firm, elaborate charts and supporting data were presented, yet the largest number of consumers interviewed in any one city was 17 in Chicago. See reference cited in footnote 2.

their business operations was large enough to justify the full-time employment of research personnel. The manager of one of the smaller regional purchasing associations reported the necessity for two full-time research economists. The discussion in the remainder of this section relates primarily to problems associated with the establishment of their own research departments by regional purchasing associations.

SHOULD THE RESEARCH FUNCTION BE CENTRALIZED OR DECENTRALIZED?²⁵

The organizational structure of purchasing associations has a marked influence on the manner in which these cooperatives may organize and operate research departments. It is, of course, difficult to evaluate the effect that various structural patterns have on the quality of investigational work undertaken and on the manner in which research problems are approached. Of interest to officials of purchasing associations in their efforts to organize research departments is a study by the National Resources Planning Board that classified business organizations into two general types - "centralized" and "decentralized."²⁶

General characteristics of these two types of organization structure are significant from the standpoint of influencing the manner in which research departments are established and undertaken. The following discussion attempts to indicate briefly their influence on the organization of departments by purchasing associations.

As used in this discussion, centralized associations are characterized by control of all important decisions in the hands of the manager. Individual departments are closely coordinated and have definite lines of functional demarcation that center responsibility for all major decisions with management. Associations operating in this manner are inclined to parcel research out to the various operating departments and to make research personnel responsible to each department head for the research undertaken. This results in close supervision of research investigations as contrasted with the freedom that is prevalent in decentralized research. Furthermore, research workers usually are far removed from managers and consequently have little opportunity to directly influence policy determination.

Decentralized associations, in contrast, are characterized by the emphasis they place on the individuals rather than upon iron-clad systems of organization. As a consequence, stress is placed on obtaining strong individuals and letting them, with a wide degree of latitude, assume almost complete responsibility for the particular department of which they are in charge. In this type of organization, management functions primarily to arbitrate organizational problems that arise and to bring about such coordination as is necessary for the effective functioning of each of the more or less independent departments or units that go to make up the company.

²⁵As used in this discussion, the terms "centralized" and "decentralized" do not refer to common organizational features of cooperatives usually associated with these terms. Instead, they are used to describe the character of manager operation of cooperative establishments. (See paragraphs 3, 4, and 5 of this section.)

²⁶See reference cited in footnote 2, Part III, pp. 23-27.

In decentralized associations research work is likely to be established as a separate department, directly responsible to the manager. Research in such associations is characterized as being more or less of a "free lance" type, permitting a wide degree of freedom in investigations planned and undertaken. The organizational structure of decentralized cooperatives contributes toward making research workers "generalists" in plant operation. They become well acquainted with all phases of business operation, organize research work accordingly, and frequently participate in Board Meetings to advise with management and directors. Under such circumstances they often may exert notable influence in policy determination.

Managers of purchasing cooperatives have expressed a wide variation of opinion on how research departments should be established. While many are frank to admit that they have not given much thought to this question, there are indications that the direction of research work would correspond closely to the way in which managers function and the degree to which managers operate associations along predominantly centralized or decentralized lines.

Research departments in purchasing associations when first organized are likely to be small perhaps not including more than one or two individuals. It thus would be rather difficult to organize activities along strictly centralized lines because a wider range of problems need to be considered than can be undertaken when strict departmentalization is followed. It is possible, of course, that time could be allocated among various departments and in this way research services would be parceled out among departments in proportion to the extent to which they have assumed responsibility for paying salaries and operating costs.

As applied to purchasing cooperatives, it seems important that research personnel be given a wide scope of operations if they are to function in other than a service capacity for various operating departments. It is only through arrangements that give considerable freedom to research workers that purchasing regionals are likely to attract well-qualified investigators. Such individuals are the ones who, if granted participation in policy determination, are equal to the assumption of the responsibilities active participation in operating affairs demands.

To the extent that an association can attract competent and experienced research personnel, it would be advantageous to permit them wide freedom in their operations. If such personnel are not obtainable, there may be justification for controlling research efforts along centralized lines. There is, however, good reason to question the advisability of even attempting to establish a research department until competent and trained personnel are available.

WHAT SHOULD BE THE RELATIONSHIP OF INDUSTRIAL AND BUSINESS RESEARCH IN THE ORGANIZATION OF A RESEARCH DEPARTMENT?

It has been mentioned that there is need for both industrial and business research by purchasing associations. Furthermore, many of the

problems lending themselves to research activities require close coordination between these two classes of investigation. While the necessity for establishing desirable working relationships between classes of research is evident, to seek to do so introduces complicated problems for the consideration of management that must be solved if associations are to secure the greatest amount of assistance from their research efforts.

Wide variation exists in the views of officials of purchasing regionals regarding the most effective procedure for coordinating business and industrial research. Some have indicated a preference for combining the activities under one director. Others have expressed the view that best results seem likely to be realized by setting up separate industrial and business research departments.

It is impossible to determine with any degree of certainty which arrangement is likely to be the better. The abilities and inclinations of persons responsible for conducting research work and the views of management may do much to contribute to successful operation either one way or the other. One of the principal advantages of having one director coordinate both types of research is that such an arrangement enables management to hold one individual responsible for all research efforts.

The difficulty of finding an individual with sufficient training and experience in both phases of investigational work, however, may be a serious obstacle to the organization of a research department on this basis. Unless a properly qualified director is found, there is danger that the individual placed in charge may have such a bias toward either industrial or business research as to seriously impair his usefulness to an association. Such a bias would contribute to a poorly balanced program and might relegate one type of research to the background while unjustifiably promoting the other. This may be an instance in which organizational difficulties may be solved by "a man of stature" within an organization who could function effectively in coordinating the research findings of business and industrial research departments.²⁷

Very often, however, the training and experience that qualifies a research worker for heading up a department of either industrial or business research usually would indicate a lack of proficiency in the other field. For this reason, most associations establishing research departments are likely to find it to their advantage to organize industrial and business research as separate units and to require that each report directly to management.

WHAT PLANS SHOULD BE ADOPTED FOR SELECTING PERSONNEL, ADDING FACILITIES, AND SETTING UP BUDGETS FOR CONDUCTING RESEARCH?

Some of the problems associated with the establishment of effective research departments relate to personnel selection, facilities, and budgets. Attention to these factors is particularly important because the

²⁷In private companies, research departments often report to a vice-president of the concern who is in charge of production or distribution, whichever is the major function of the company.

rapid growth of regional purchasing associations during the past decade has not permitted giving them careful thought. Associations now are face to face with the consequences of this development and, in many instances, they have had no opportunity to prepare for them.

The selection of qualified personnel is the very foundation for the establishment of a good research program. It has been common practice for both purchasing associations and private business concerns to employ individuals with established professional reputations as directors of industrial research departments. Usually they are individuals with college or commercial research training and often they have had practical experience with the agencies they are to serve in a research capacity.

A word of caution seems in order, however, as to the selection of personnel to head business research departments. There is danger that some associations may be tempted to follow the established practice of promoting men from within their own ranks to fill these important positions. At the present time, with a few exceptions, they do not have individuals who possess training and experience that qualify them to direct a department of business research. Consequently, if capable men are to be employed in these responsible positions, it will be necessary to go outside association employee rolls to find them.

One association has hired as its director of business research a former professor and research economist in agricultural marketing from a land grant college. In this capacity he conducted a number of business investigations on problems of interest to the association. The director of marketing for one association has a background as teacher of vocational agriculture and director of a private experimental farm. As associations gain experience in business research it may be that those cooperatives that have set the pace in establishing research departments will be able to furnish associations just undertaking such activities with some of their more promising personnel to serve in business research departments.

Another problem in establishing a research department relates to the selection of assistants. A logical development in research, to the extent that it expands and becomes an integral part of association operations, is the tendency for directors of research to devote an appreciable portion of their time to administrative considerations in connection with the operation of their departments. Problems of policy determination also are likely to make additional demands on their time. This requires the employment of competent assistants if a high standard of research is to be maintained. It might be well for purchasing associations to formally draw up desired qualifications for various research positions and to adhere strictly to job classifications in adding or replacing staff members.

To competently perform tasks assigned them, it is essential that research workers have sufficient facilities for carrying out their responsibilities. For technical studies it is necessary to have adequate laboratories and necessary supplies and equipment to undertake all phases of

investigations that workers normally are expected to consider. In conducting business investigations it is highly important to have sufficient business machines, adequate working space, and competent clerical help.

Library facilities are needed for both classes of investigations. Those purchasing associations giving attention to the establishment of research libraries are just beginning these efforts. All associations with research experience are finding that in order to conduct effective investigations one of their big jobs is keeping abreast of current literature and research developments.²⁸

An effective guide to business activities and one that applies equally well to research operations is the practice - followed by cooperative associations and private business alike - of establishing operating budgets. It is desirable to budget research expenditures because such a practice imparts stability to departmental activities and furnishes a basis for planning the yearly scope of operations. It also permits management of associations to maintain control of expenditures for research operations.²⁹

WHAT SHOULD BE THE RESPONSIBILITIES OF MANAGERS AND RESEARCH DIRECTORS IN DEVELOPING EFFECTIVE RESEARCH PROGRAMS?

In many respects effectiveness of the research programs adopted by cooperative purchasing associations depends upon the understanding and appreciation that management has of this function. Cooperative officials will find of interest a classification of private business concerns based on the attitude of management toward research.³⁰ This classification places managers in the following groups: (1) those that give business research "full acceptance," (2) those that give it "full recognition," and (3) those that pay only "lip service" to the idea of research.

This classification also is applicable to the views of managers of regional purchasing associations. It serves to bring into focus the influence that ideas toward research can have in determining how a research department will be organized and how it will function.

Associations that give research "full acceptance" are likely to operate along decentralized lines and to set up overall research departments. They would place special emphasis on using business research departments to conduct detailed studies of important phases of business operations

²⁸Some of the larger private research departments employ research librarians, maintain research libraries, and in some instances also employ individuals whose sole responsibility is to establish and maintain relations with research agencies and in this way obtain information as to the nature and scope of research investigations conducted or under consideration at recognized research institutions.

²⁹Regional purchasing associations come nowhere near making the proportionate expenditures for research that many private firms do. This applies to expenditures by associations and to indirect costs relating to research conducted through Federal and State agencies. Many private business concerns report research expenditures ranging from half of one percent to three percent or more of gross sales. In the chemical field, for instance, research expenditures are often reported at 5 percent of total gross income from business.

³⁰For a detailed discussion see reference cited in footnote 2, Part III, p. 35.

and practices. As a general rule, research directors would have complete freedom to undertake all types of investigations, present findings direct to management, and actively participate in discussions pertaining to policy determination.

To the extent that investigations are necessary for various departments, such efforts would be undertaken or at least directed by research personnel. This department, rather than the operating divisions served, primarily would be responsible for such matters as determining the nature of investigations to be undertaken, deciding upon the scope of study, and evaluating the results obtained.

Associations that "recognize" research are likely to operate on a centralized basis and to look upon such activities as subordinate to policy making and not an integral part of business organization. Distinction largely would be one of full cooperation with the research departments as compared with relegating them to limited service.

In associations that "recognize" research strong-willed association officials are more likely to "use" a research department or to compromise its activities to the end of "defending what has been done." Under such conditions the danger exists that facts and figures may be assembled to support views and beliefs of management or key officials rather than to seek impartial facts that "let the chips fall where they will."

Associations paying only "lip service" to research are not likely to establish research departments or to give serious consideration to the use of research services available through State or Federal agencies or commercial research concerns. This primarily is because of lack of appreciation for possibilities in investigational work or because of the nature of business operations. In some instances such research as is considered is farmed out to commercial companies. Business studies would likely be allotted to various individuals within the association for investigation, giving but little recognition to their qualifications for the job.

Unless management gives full support to research activities, accomplishments will be limited and usefulness will be impaired. In general, the responsibilities of management in the establishment of an effective research program include consideration of the following factors:

1. Selection of a director with proper training, experience, and other qualifications.
2. Permitting the employment of competent assistants.
3. Furnishing needed facilities and funds.
4. Giving a department proper stature within an association and encouraging efforts that will give research personnel professional respect outside the association.
5. Developing and maintaining a spirit of "research consciousness" among key association officials.

6. Contributing toward the building of morale in a department by letting research be channeled so that main problems of policy determination receive attention, and once findings are determined, permitting research personnel participation in discussions of policy determination.

Research directors in purchasing associations occupy strategic positions in bringing about the establishment of effective research programs. In addition to being competent and respected men in their field, it is essential that they show ability to work with association officials. This, in fact, requires a "selling job" on their part as far as services of the research department are concerned. To work effectively with management and department heads is important if the scope of research activities are to influence major departments of associations. In inaugurating research programs it is especially desirable that business research directors not only have a general knowledge of all branches of association activities but also that they be able to steer investigations in directions that will show immediate prospects for practical application.

It likewise is important that directors of research recognize the influence of the views of management on the manner in which departments will function and on the type of work which they will be permitted to undertake. As would be expected, it is only in associations that "accept research" that sufficient "academic freedom" prevails to permit business research personnel to establish a high degree of pride in professional status and to maintain working conditions that attract competent research men.

Another problem that relates to effective operation of a research department is the possibility, already referred to, that management might find occasion to use such a department for "passing the buck" with regard to some of their own pet policies that may have proved injurious to the association. Certainly the establishment of a research department leaves the door open for such a possibility if officials are so inclined. From the standpoint of morale within the research department, not only should its directors see that such a situation is avoided but also it is important that personnel be given due credit by officials for various findings and recommendations which have proved to be to the association's advantage.

Research directors can contribute to an effective research program by:

1. Selecting qualified assistants.
2. Encouraging the use of such established operating devices as research and project committees, established budgets, and proper facilities and equipment.
3. Maintenance of high professional standards both as to caliber of work and as to maintenance of professional relationships with noted research workers and agencies.

4. Establishment of research programs that relate to major operating problems of associations.
5. Insisting on effective presentation of research findings.
6. Arranging working schedules for themselves and their assistants so as to have sufficient leisure time to permit an objective consideration of association problems.

HOW SHOULD PLANS FOR RESEARCH BE INITIATED?

Since research programs of most regional purchasing associations are in a formative stage they may exert a marked influence on the character of research by giving consideration to the adoption of carefully thought out policies and practices for its initiation.

Southern States Cooperative, Inc. in its postwar planning report, perhaps has indicated more thought to the inauguration of research programs than any other purchasing regional. As to business research the report specifically recommends that "A trained economist, skilled in market research, should be employed to work on such problems as basic economic trends, market analysis, etc." Such a recommendation is in accordance with the practice of devoting attention to economic and market problems in the general field of business research.

The report also recommends that a committee of six members - three from management and three from the Board of Directors - be established to guide its research program. Such a committee is proposed for the purpose of considering various projects suggested for study and for selecting those that offer greatest possibility of benefit. The association further recommends that this procedure be followed by appointment of a project committee from members of the research committee to consider procedures for establishing and conducting proposed studies, determining the nature of investigations to be undertaken, and ascertaining that research findings be implemented into action.

Advantages of such a plan include: (1) acquainting directors and management with the services that the association's research program is expected to perform, (2) emphasizing to research directors basic problems confronting associations and thereby enabling them to be of greater service in directing research activities to the end of obtaining solutions to these problems, and (3) creating a balanced research program.

Careful planning of research activities also tends to eliminate the danger of expecting the impossible from research. In contrast, it makes it difficult for management to relegate research to the background at a time when such endeavor might be so channeled as to bear upon basic problems in the operations of associations. A few managers have indicated that they favor having the planning of research handled by representatives of management and research directors serving as an informal research committee. In this way they would preform many of the functions previously discussed as coming within the scope of activities of research and project committees.

If a research department is to function with maximum efficiency it seems indispensable that associations establish machinery for planning and conducting investigations. This enables them to chart the course for research department studies and helps to eliminate the danger of becoming helplessly bogged down in nonessential detail. It also gives officials an opportunity to become acquainted with research plans and policies. In general, this does much to encourage research consciousness within an organization and contributes to having basic problems confronting regionals subjected to a research approach in arriving at decisions that will influence operating policy.

TO WHAT EXTENT SHOULD ASSOCIATIONS ENGAGE IN FUNDAMENTAL (PURE OR BASIC) RESEARCH?

Like most private industrial concerns, regional purchasing cooperatives have placed emphasis in their investigational work on "practical research." This is but another way of saying that consideration primarily has been given to studies that can be related immediately and directly to business operations. It also serves to distinguish, to some degree, short-time from long-time research.

Most private business concerns began research with major emphasis on applied investigations. Although this emphasis has been maintained, some of the larger companies have been inclined to add varied kinds of research that have many aspects of fundamental investigations. Personnel of these establishments have found that the gap separating fundamental and practical research has been more imaginary than real. In actual practice some companies report that it often has proved advantageous to consider both applied and fundamental investigations. This development seems to be a result of growing maturity in and appreciation of research, particularly industrial research.³¹

The question arises as to what extent purchasing associations should follow similar tendencies when their research activities become better established. To a large extent the degree to which purchasing associations are likely to engage in fundamental research will be determined by whether or not they are able to make full use of the research agencies that are or may be in a position to conduct investigations for them. In this connection it seems certain that they will find it to their advantage to make greater use of State and Federal research agencies. Experience gained in these relationships also may contribute to increased appreciation of certain aspects of fundamental research.

In some instances where associations handle specialized products it is likely that investigations being conducted or contemplated by various governmental agencies may not give the consideration to such items. Likewise, it will be difficult if not impossible to interest other purchasing regionals in such research. Consequently, individual purchasing associations may conclude that it is imperative for them to give attention to aspects of fundamental research as they apply to such products or to certain phases of their business operations.

³¹ Among many private companies it also has come to apply to business research within the past decade.

The extent to which purchasing associations should adopt a public interest or public welfare approach in operating practices is a matter of considerable conjecture. For instance, it is reported that some of the European marketing cooperatives prior to World War II gave attention to determining how a lower price for the products sold might be advantageous to both farmer members and the consumer public. The extent to which strong consumer associations have been organized in many European countries may in part account for emphasis in this direction. It seems evident, however, that cooperative associations in the United States will need to give greater consideration to determining how far the welfare of its members fits in with broader aspects of public welfare.

A question illustrative of problems associated with another phase of public policy relates to how much consideration purchasing associations should give to the degree to which they ought to serve as instrumentalities of Government in carrying out special Federal programs. The hay emergency programs conducted by Southern States and Eastern States serve as illustrations.

It also is true that the extent to which purchasing associations will be able to attract research personnel of high caliber will be determined by the type of investigations that are undertaken. This is likely to lead to less emphasis on trouble-shooting as the research departments of associations gain in stature and more attention to basic problems of industrial and business research.

In general:

1. Associations should seek to avoid duplication in research and to the extent that other research agencies, particularly State and Federal, have undertaken or can conduct fundamental industrial or business research that applies to purchasing regionals they should be utilized.
2. Problems of special interest to purchasing associations - those applying to joint research by several regionals or independent research by one regional - may be of such importance and of such urgency as to justify these cooperatives' conducting a certain amount of fundamental research.
3. The extent to which an association should engage in fundamental research may be determined by its ability to establish and maintain qualified research departments, the attitude of management, and the size of associations.

TO WHAT EXTENT SHOULD ASSOCIATIONS DISTINGUISH BETWEEN PRACTICAL AND THEORETICAL RESEARCH?

Closely related to a consideration of the degree to which purchasing associations should engage in fundamental investigations is the basis

for distinction between "practical" and "theoretical" research.³² Many officials of purchasing associations, workers at agricultural colleges, and individuals connected with other types of research agencies have placed special stress on the need for practical research. There is little if any question as to the desirability of maintaining investigations conducted by or for purchasing associations on a practical level. The very definite question arises, however, as to what is and should be considered practical and theoretical.

Some research workers seek to draw a sharp distinction between practical and theoretical research. There are those who give the impression of making every effort to identify themselves with the former while shunning the latter. In contrast, certain professional people, with their stress on theory, disdain to associate themselves with anything as lowly as the practical.

Among some persons advising cooperative associations, the tendency is not unusual to associate and label their own beliefs or investigations as practical and to characterize findings that differ from theirs as theoretical and thereby imply that other views have little useful application to operations. To attempt to curry favor with those uninitiated in research by such tactics as belittling the efforts of other research workers with whom they happen to be in disagreement may justify questioning the intellectual honesty of those who use such an approach.

If research work is to maintain its status as unbiased, truth-seeking, investigational endeavor, the necessity for eliminating all references to emotional appeals cannot be overstressed. The question has been raised as to whether the so-called "theoretical approach," in actual practice, may not prove more practical than what, in too many instances, is nothing more than haphazard and disorganized opinions that are passed off as practical studies. The latter opinions have little basis in experience and frequently are nothing more than the glorified, personal views of individuals.³³ There is much in the field of business research to support the truism that "there is nothing as practical as a good theory."

In a discussion of needed research in cooperation Professor O. B. Jesness of the University of Minnesota remarked that, "Those who think anything theoretical is impracticable might well be reminded that men who pride themselves on being 'practical' often have some of the worst theory because they have not thought the problem through. We need research of a more fundamental nature as well as research directed at the solution of immediate and specific problems. The former is basic to the latter and in the study of cooperative problems both are needed."

³²Dr. Nourse suggests that the complex nature of economic problems confronting business requires the services of "general economists" in addition to specialists and may in effect demand the services of "economic theorists," but he adds that such theorists should be "theorists of reality." "...he must consider the impacts of the corporate policy upon other companies and upon the national economy as well as the impact of other corporations and of the whole economy upon his individual firm." He further emphasizes the interrelations of research by stating that the "...top executive needs to become a lay economist." Nourse, E.G. *Price Making in a Democracy*. Brookings Inst. 541 pp. 1944. See pp. 387-389.

³³Jesness, O. B. *Digest of Roundtable Conference on Needed Research in Cooperation*. Amer. Inst. of Cooperation. American Cooperation. 1936. See p. 743.

Much of the basic research work in economics, for instance, relates to problems of price, distribution, production, and more recently, consumption. Too frequently much so-called practical research has dealt with minor aspects of economics and has come to describe studies that do not "plough very deep." As a result, research workers are coming more and more to realize that, except in emergency conditions such as those caused by war, further stress must be given to studies of basic economic forces. This needs to be supplemented by an interpretation of economic forces as they may affect associations in their efforts to help patrons utilize various products handled by cooperatives and to obtain supplies in the most efficient way. Basic to the business operations of purchasing regionals are such matters as price relationships, response of consumers to price, need for accurate forecasts, and general direction of economic trends.

In actual practice then the real issue does not seem to be one between a practical and a theoretical approach to research. It rather is one which brings into focus the competence or incompetence of research workers and their inclination to deal with the more basic and fundamental problems. What is needed seems to be recognition that in the hands of competent workmen much of our so-called practical and theoretical research, rather than being antipathetical can be used to supplement and complement each other. It should be recognized that there is no easy or simple solution to the many and varied economic phenomena making their influence felt in the business world. If there were, surely some investigator, of either a practical or a theoretical bent, would have come up with accepted solutions before now.

It would be a mistake to try to uphold many of the procedures, practices, or conclusions of research workers or those who are called research workers. However, to the extent to which qualified and competent research personnel are employed by purchasing associations the artificial barriers between theoretical and practical research will tend to give way to an understanding of the broader aspects and the very complex and interrelated features of research problems.

Progress in removing barriers in business research is likely to be evidenced by the instigation of improved qualitative and quantitative methods on the part of research workers in these procedures. To the extent that they give attention to such basic factors as quantitative tools, tests or significance, improved statistical procedures, adoption of various established bases for forecasting and estimating, and recognition of the desirability and necessity of adequate training on the part of research workers, barriers in the establishment of effective research work are likely to be diminished.

HOW SHOULD RESEARCH FINDINGS BE PRESENTED?

Wide variation exists as to methods followed in reporting research findings by regional purchasing associations. These methods range all the way from informal verbal reports to managers and department heads to

detailed reports carefully illustrated and giving precise information to objectives, procedures, findings, and conclusions of research work undertaken. Commercial research concerns and other agencies that have made studies for purchasing associations report similar variations in methods of presenting their findings.

Purchasing associations would benefit from insistence upon detailed and written presentation of research investigations. Such a practice has the advantage of maintaining a documentary file of investigations completed. The historical value of such a file when undertaking future research might be considerable. The practice of preparing written reports also has the further advantage of avoiding misunderstanding with respect to findings presented and recommendations made by research personnel. It will help to eliminate misinterpretations placed on such views by persons in policy-making positions. Another advantage of preparing written research reports is that they present possibilities for very considerable educational value in acquainting management and boards of directors with the nature and extent of research work undertaken.

Many different types of reports are and can be distributed by research directors. Perhaps the most common is the project report. This often is made in mimeographed form and gives information as to objectives, procedures, findings, and conclusions for each study undertaken. Some associations have found it helpful to supplement these reports with summaries calling attention to the most significant research findings.

A few purchasing regionals use limited space in house organs or various other publications for popular presentation of high lights of investigations. Especially in business research, associations have made it a practice to have research departments prepare summaries of general economic conditions and association activities. This helps to acquaint management, department heads, and key officials with problems related to operating performance.

Another problem applies to classes of personnel or individuals who should receive research reports. As a general rule, management and executives in policy-making positions qualify to obtain findings of research departments. Although general policy is to label many research findings "confidential," management is becoming more and more inclined to circulate research reports among officials of their association and among other regionals. As a rule, most department heads are on the receiving list of such information whether or not the particular findings reported apply to activities of special concern to them. The general belief prevails that by acquainting officials with functions and operations of research departments they will develop a better appreciation of research and therefore will be in a better position to utilize the services of research departments as needs arise.

The extent to which boards of directors should obtain reports on research activities also is of interest. It seems reasonable that research directors as well as such other officials as managers, treasurers, and heads of manufacturing, commodity, and service departments should make at least a yearly report to directors and farmer members.

Furthermore, the decision as to whether boards of directors should receive special reports of research activities may depend upon the nature of problems studied. If these problems relate particularly to policy execution, they are matters for the direct consideration of management and of secondary interest to boards of directors. On the other hand, boards of directors may insist that research departments be used in obtaining information relative to problems applying to policy determination. Naturally such findings would be of special interest to board members. There are indications that one of the important functions of research departments, as they become better established in purchasing regionals, will relate to obtaining information that applies to problems considered by boards of directors.

The idea also has been expressed that boards of directors may wish to arrange for their own investigations for evaluating the performance of management and key officials. Research investigators should not be responsible to management when handling such assignments. Because of their ability to serve in an unbiased capacity it may be that for special problems of this nature boards of directors will desire to call in State or Federal research agencies to undertake such research.

Purchasing regionals have done very little to encourage research personnel to write for professional periodicals. Except for an occasional article in the "News for Farmer Cooperatives" by operating personnel, there have been no articles on business research. In a few instances, articles have appeared in technical journals by personnel of industrial research staffs. As a general rule, however, these articles have related to techniques for various tests and determinations.

Writing for professional journals has several advantages. These include likelihood of more accurate and painstaking work on the part of research personnel, enhancement of research department morale, building appreciation for the research department within the association, and contributing to the prestige of the cooperative among research agencies and professional research workers.

The following considerations apply to the presentation of research findings by regional purchasing associations:

1. More effort should be given to the preparation of research reports, noting such items as procedure, objectives, findings, and conclusions.
2. Increased attention should be given to wider distribution for research reports.
3. Stress should be given to preparing reports so as to create and hold the interest of various groups of readers - department heads, directors, and members.
4. Personnel should be encouraged to write for professional magazines.

WHAT PROBLEMS ARE ASSOCIATED WITH MAINTAINING OBJECTIVITY
ON THE PART OF A RESEARCH DEPARTMENT?

If research is to be conducted on a professional basis by regional purchasing associations it is essential that personnel be permitted to work under conditions that will encourage maintenance of an objective approach to all research problems. This is but another way of saying that research personnel within an association must under no circumstances permit itself to function in the role of "yes men" for management or department heads.

Dr. E. G. Nourse of Brookings Institution suggests that research workers might well use as their motto the title of a movie of some years back, "Nothing Sacred." He continues by stating that for men of science, "The whole purpose has been to make production better in the future, not to validate past choices. No one has presumed to say to the scientist: You may go as far as expanding knowledge of physics or chemistry takes you provided you do not challenge my inherited beliefs or personal prejudices in these fields. You must not expect to upset what I already 'know.' The economist who is inducted as scientific aid to the business manager is, by contrast, in most cases kept on a leading string and fitted with blinders." Along similar lines, C. E. K. Mees, Vice President in Charge of Research for Eastman Kodak Company, has stated, "No director who is any good ever really 'directs' any research. What he does is to protect the research men from the people who want to direct them."

There always is danger that findings may be pigeonholed when they reflect inefficient operating performance or reveal the shortcomings of policies dear to the hearts of policy makers. That department heads may at times seek to restrict objectivity is possible since one manager suggested, and very properly so, that he would use a business research department to evaluate the performance of various operating departments.

When investigational work is submerged in the various operating departments and when personnel is responsible to department heads the very nature of the work undertaken will seldom be of such character as to serve to evaluate business performance of the department in question. Consequently the problem of maintaining objectivity is not likely to have much application in such strictly service activities.

Problems associated with maintaining objectivity in research on the part of purchasing associations are likely to be more in evidence when investigational work is coordinated in a special research department.

Certain characteristics of management of some regional purchasing associations serve to suggest the nature of problems associated with maintaining objectivity in research. While management has made a highly commendable record, this very fact has contributed to a certain measure of self-sufficiency and to a tendency for a few to seek to "go it alone." It also is true that the performance of an association during the past five years has afforded little opportunity to evaluate the ability of management. The next five or ten years may be much more revealing.

In any event, the problem is largely one of management and directors' maintaining flexibility and showing an honest determination to use research as a tool in helping associations seek to obtain better operating performance, let the shoe pinch where it will. It is in the years ahead that performance will be put to an acid test, and it is in such periods that truly objective research may mean the difference between success or failure - at least, between going ahead and standing still or falling back.

Another difficulty in maintaining objective research was expressed by one official of an association who noted a tendency on the part of management in many cooperatives "to grow old on the job." In his opinion, managers sometimes become more interested in security for themselves than in adventurous undertakings designed to further improve the manner in which associations can better serve its farmer patrons. The possibility of this situation becoming a deadening influence on cooperative endeavor in the years ahead is so real to this individual that he questions if research findings do not fall on more welcome ears among private business than among cooperative associations. This situation prevails, he believes, because private business in its intensive drive for dividends is interested in an objective search for truth "no matter who gets hurt." In the case of some cooperatives the emotional appeal that gets intermixed with cold hard business facts could allow some associations to go "sour" before members and directors become aware of what is happening. Under such conditions management naturally is not interested in "putting its cards on the table" and in obtaining objective evaluation of association performance. That this official is not alone in his views is indicated by the following statement of a college representative: "I have always questioned the possibility of research personnel, employed by regional purchasing associations, maintaining objectivity in research."

To maintain objectivity in research among regional purchasing associations the following items seem essential:

1. Management and directors must at all times put the interests of members first and personal interests last.
2. Management must be adventurous and fearless - no longer willing to be tied by the dead hand of tradition or by fear stemming from such sources as the desire for personal stability, dread of the unknown, or exposure of mistakes.
3. Management must give research directors complete control once a study has been decided upon and in addition must give wholehearted support and encouragement to efforts to obtain nothing but the truth.
4. Research directors must possess such integrity of purpose that their interests in obtaining facts will not tolerate a "yes-man" attitude or a willingness to be used as a rubber stamp to promote the views and opinions of others.

The preceding discussion in this section has emphasized the importance of farmers regional purchasing associations' giving thought to careful planning for the establishment of research activities. To be effective such plans should give attention to matters that range all the way from the nature of research that ought to be undertaken to problems of organizing a research department, means of initiating studies, and procedures for presenting findings. It is essential to consider these basic problems and to arrive at sound policies for organizing research departments if associations are to render maximum service for farmer members. The time to prepare the seed bed, cultivate the ground, and apply other approved cultural practices to a research department is when it is being organized or at least during the early states of development - not after its patterns of performance have become fixed and more or less inflexible.

APPLICATION OF RESEARCH TECHNIQUES TO EDUCATIONAL PROGRAMS

Well planned research is essential for the establishment of effective educational programs by regional purchasing associations. In its broad aspects research primarily is a fact-finding and fact-interpreting procedure that contributes to broadening the fields of knowledge. Used in this way, it is of value to educational departments of regionals in their efforts to formulate sound educational programs.³⁴

PROBLEMS IN COORDINATING AN EDUCATIONAL PROGRAM THROUGH RESEARCH

The use of research as a tool to help purchasing associations maintain more effective educational programs brings to the foreground important questions.³⁵ The more important of these questions include:

1. How can research help in establishing effective educational programs?
2. To what extent is it possible to develop joint educational programs with other purchasing associations?
3. How should personnel and facilities of associations, representatives of agricultural colleges, and other educational agencies be used in developing educational programs?
4. How can research assist in developing public relations programs designed to acquaint members, employees, and the general public with salient features of cooperation?

Attention is now given to each of these questions.

How can research help in establishing effective educational programs?

The establishment of an effective educational program by purchasing associations depends upon recognition that such a program must consider the needs and desires of patrons, attitudes of members toward their associations, and views of employees and the general public as to cooperation. These factors are emphasized in the following questions:

1. What do patrons desire in the way of service from purchasing associations? Until associations have made a careful study of the desires of patrons they are in no position to do a competent job in conducting educational programs.
2. What should patrons desire in the way of service from purchasing associations? It is not possible for associations to render maximum service until they have discovered the basic needs

³⁴For a discussion of educational programs of cooperative associations, see Jones, J. W. Membership Relations of Cooperative Associations. Farm Credit Admin. bul. 9. 111 pp. 1936.

³⁵The need for research in educational work was well expressed by one individual who stated that, in his opinion, there was "too much educating of the kind now practiced."

of members and then utilize the services of research and educational departments in helping members develop an appreciation for such needs.

3. What do patrons think of the organization and operation of their association? When associations have definite and unbiased information as to the regard with which they are held by member patrons they are able to organize educational programs so as to get maximum results.
4. How should employees be trained to perform their jobs more effectively? To conduct effective educational programs among employees calls for the use of sound educational techniques and for the testing of results in accordance with established objectives. Under all circumstances an educational program must avoid the impression of "dishing out the same old stuff."
5. What does the public in general think of cooperative purchasing associations, and what means should be followed to best acquaint the public with the performance and methods of operation followed in serving farmers? Officials of associations should realize that even though large segments of the general public have but limited knowledge of cooperation those interested in additional information are usually persons with considerable interest and ability. Under such circumstances performance and facts are convincing - emotional presentations and mere opinions will not do.

Reference has been made to the fact that the effectiveness of a research program can be measured by the influence it has in shaping association policy to help attain such basic objectives as improved quality, better service, and increased economy. To the extent that associations establish educational programs that are rooted in research they are in a better position to function as pace-setters in the attainment of these objectives.

The ability of an association to maintain working relations with members is closely related to performance as measured by the attainment of these objectives. It is only after regionals have assured themselves that they can render better-than-average performance for members in the attainment of goals that they are in position to make appeals to members on other than an emotional basis as to advantages of belonging to cooperative associations. To do otherwise is to put "the cart before the horse," and places purchasing regionals in the uncomfortable position of making statements that they are not necessarily able to support by actual operations.

Before an effective educational program can be inaugurated it is essential that purchasing associations have the best possible information about the preceding questions. Failure to give consideration to their implications subjects cooperatives to the danger of "scattering their shots" in attempts to develop sound educational programs. Research can

serve as a useful tool in helping them chart educational efforts and in directing these efforts to obtain maximum results for the time and effort expended.

To what extent is it possible to develop joint educational programs with other purchasing associations? Interregional purchasing associations have taken the lead in promoting joint educational efforts among regional cooperatives. The milking machine schools of National Cooperatives, Inc. and the tractor schools of National Farm Machinery Cooperative, Inc. serve as examples of trade schools conducted in this manner. The cooperative correspondence schools and the Rochdale Institute also serve as additional examples of joint educational efforts.

Size of operating territory and prevalence of special problems confronting individual associations are factors that explain why many individual cooperatives have followed the policy of largely "going it alone" in their educational programs. The practicability of this approach, however, does not exclude the desirability of broadening the scope of many educational activities by occasionally exchanging instructors, students, and course material with other regionals; by calling in representatives of production and agricultural economics departments of land grant colleges; and by utilizing services of the Cooperative Research and Service Division of the Farm Credit Administration, and the personnel of district banks for cooperatives.

To the extent that associations attempt joint educational effort it is important that stress be placed on various commodity trade practices and on broad aspects of cooperation. To do otherwise subjects such efforts to the "interdenominational strife" that is associated with the tendency to promote the conflicting philosophies of cooperation adhered to by various associations. The official of one association expressed this difficulty by stating that in joint cooperative undertakings there was "never much of a problem as to what should be done, but the means of doing present another story."

How should personnel and facilities of associations, representatives of agricultural colleges, and other educational agencies, be used in developing educational programs?³⁶ It does not seem likely or desirable that purchasing regionals establish their own cooperative colleges. Many may, however, utilize the services of departments of education in agricultural colleges and in other educational institutions to much greater advantage than at present.

Two rather distinct views have developed among purchasing associations as to the nature of educational activities that should be undertaken. One stresses the commodity trade school approach and gives emphases to furnishing information immediately useful in the distribution of commodities. The other emphasizes such matters as cooperative philosophy, general aims and objectives of purchasing associations, and the place of these cooperatives in the economic life of the country.

³⁶In addition to State and Federal educational agencies it should be noted that other important agencies that exert considerable educational influence include the following: (1) the American Institute of Cooperation, (2) the Cooperative Correspondence School, (3) the Rochdale Institute, and (4) general farm organizations.

When attention is given to the first type of educational activity, it is likely that associations, either individually or on a joint basis, will assume primary responsibility for the establishment and operation of schools. Department heads of purchasing associations usually have the status of commodity specialists. Their interest in and promotion of specific training along commodity lines explains why this approach to employee education frequently is very popular and why it is undertaken by many regionals.

When emphasis is placed upon general aspects of cooperative schools, associations might benefit by giving more attention to bringing in personnel from departments of agricultural economics of land grant colleges, the Cooperative Research and Service Division and banks for cooperatives. These agencies would be particularly helpful in presenting broader aspects of cooperation and in interpreting general economic trends as they may influence the direction that educational efforts of purchasing associations should take. This view is substantiated by an official of one cooperative who, in stressing the importance of education and the desirability of broadening the content of subject matter of schools by bringing in outside views, stated that "people are inclined to act on the information they have." Therefore, if employees return for successive schools it seems particularly desirable to rotate teaching personnel from time to time in order that those enrolled may benefit from new and varied views of individuals coming from outside the association.

How can research assist in developing public relations programs designed to acquaint members, employees, and the general public with salient features of cooperation? Cooperative purchasing associations use house organs and similar methods of publicity to help acquaint members, employees, and the general public with their operations. These publications on numerous occasions have reported on studies and investigations that have specific application to basic problems of purchasing associations. To develop appreciation among readers of these publications it would be desirable to place stress on performance whenever such emphasis is justified.³⁷

There is need for studies of house organs of cooperative purchasing associations to evaluate the effectiveness with which they serve farmer members and acquaint employees and the general public with fundamental characteristics of cooperatives. Such studies might well give attention to determining the kinds and nature of material presented and to possibilities for coordinating such presentation with the needs and desires

³⁷Professor James Drury, Department of Marketing, New York University, in advancing the view that cooperative associations have developed poor press relations, in a recent article, "Are Co-op Journals Using Wrong Approach to Postwar Distribution," states:

"The Co-operative press gives little indication of even being aware of the seriousness of the problem. It continues to indulge in the ineffective and adolescent policy of attempting to promote interest in co-operation through the destructive approach. It constantly snipes at private enterprise, wastes valuable white space in biased attacks on advertising, and stoops to 'smart alec' comments on the efforts of businessmen (who are presumed to have little idealism and less social conscience) to think through to a solution of this problem of distribution.

..."Why doesn't the Co-operative press devote itself to showing the constructive contributions which the Co-operative method can make to this problem of more efficient distribution of goods? Is it incapable of analyzing the proposals of private business leaders in a responsible and constructive manner?"

of members. This requires research as to the nature of reader-interest. Such investigations could advantageously replace the intuitive opinions of association editors as to reader-interest by obtaining actual information on the views expressed by readers of cooperative publications. Furthermore, studies are needed that relate to the type of information that patrons should have if they are to make the best use of their association and to become better acquainted with its business operations.

Since purchasing associations have expanded to the extent of attracting interest of the general public during recent years, house organs also may be important instruments in developing public relations. Little attention has been given to many important aspects of this function, and there are indications that in some instances regionals could increase the usability of their publicity efforts by using them to serve as one means of acquainting the general public with the nature of association performance, methods of conducting business, and views on issues of current discussion that apply to purchasing associations.

RESEARCH TECHNIQUES FOR EDUCATIONAL PROGRAMS: A SUMMARY

General appraisal of the place of research in the educational programs of regional purchasing associations indicates a growing interdependence between education and research. These programs have been directed toward improving working relationships with members, employees, and the general public; obtaining basic objectives; and evaluating educational procedures. As they pass from the experimental stage, associations are giving recognition to possibilities of using research techniques as a tool to evaluate the performance of educational efforts. If the best results are to be obtained it will be necessary for officials to know if programs under way are producing as anticipated. This can only be determined by research. As a guide in helping associations evaluate performance of their educational programs research may be used to obtain answers to such questions as the following:

1. Does the educational material presented fit in with the needs and desires of those for whom such information is prepared?
2. How may research be used to find means of increasing the effectiveness of schools for employees, managers, and directors?
3. To what extent may research be used to evaluate accuracy and conciseness of information presented at their schools?
4. In what ways may research be used to determine the direction which future educational activities should take?

By using research techniques in this way, associations are implementing educational procedures by making effective use of research findings. This is in accordance with the "R.E.A." philosophy of the Cooperative Grange League Federation Exchange, Inc. in which "R" stands for research, "E" for education, and "A" for action.

FINDINGS AND OBSERVATIONS

Increased recognition is being given to research activities of regional purchasing associations. This is shown by the following trends:

1. A growing tendency to establish formal research departments to consider both industrial and business investigations.
2. Annual expenditure in 1944 of about two-thirds of a million dollars on research and quality control work.
3. Evidence that competitive necessity will require giving even more attention to research if cooperatives are to maintain the role of "pace-setters."
4. Increased attention to directing research so as to realize better performance in achieving basic objectives - improved quality, better service, and increased efficiency.

Industrial research activities of purchasing associations primarily have been directed toward helping farmers to obtain better quality in feeds, fertilizers, seeds, petroleum products, farm machinery, and miscellaneous farm and household supplies.

Business research activities, in turn, have been directed toward helping farmers obtain savings through increased efficiency in operations. Principal activities in business research relate to manufacturing and processing, purchasing of supplies, distribution methods, administration and policy determination, membership relations, financial structure and credit, traffic, marketing of farm products, general economic trends, and personnel.

A number of factors influence the direction that research activities of purchasing associations have taken and are likely to take in the future.

The more important of these are:

1. Possibilities of establishing joint research arrangements with other purchasing regionals.
2. Extent to which research activities of State agencies - particularly experiment stations of agricultural colleges - can be applied to the needs of associations.
3. Investigational work of interest to associations conducted by Federal agencies - particularly the Cooperative Research and Service Division, Farm Credit Administration; regional laboratories; and other special agencies and bureaus of the Department of Agriculture.
4. Ability of managers and officials to see practical use for research and their willingness to promote a spirit of "research consciousness" within associations.

BASIC FINDINGS

The rapid growth of farmers purchasing associations and the fact that their research activities are in a formative stage suggests the desirability of giving attention to basic considerations involved in establishing effective research programs. This is shown by the following observations which represent the findings of this study:

1. Desirability of establishing properly coordinated joint research departments - industrial and business - with other regional associations to consider items of general interest to more than one regional has been indicated. These arrangements offer possibilities for restricting duplication of effort, employment of more competent personnel, and more efficient performance of research functions. (See pp. 44 - 47.)
2. The advantages to purchasing regionals of establishing their own research departments have been discussed. Through such departments they are in a position to give immediate attention to strategic investigations that relate to the specific problems confronting associations. To establish a competent research department, research directors should be granted a wide degree of latitude in operations, should restrict investigations to basic problems, should report directly to management, and should actively participate in policy determination.
3. It was indicated that purchasing associations usually would benefit from the establishment of separate departments for industrial and business research. Rarely is personnel in one field of research capable of effectively coordinating investigations in the many diverse activities found in both industrial and business studies.
4. Managers and directors of purchasing associations can contribute to effective performance of research departments by insisting on high standards of proficiency, proper training, and adequate experience in the selection of personnel; by providing adequate operating facilities; and by setting up liberal budgets. (See pp. 49 - 52.)
5. Attention has been called to the need for careful planning in initiating research. (See pp. 55 - 57.) The establishment of research committees, followed by the setting up of special project committees for consideration of specific problems would help to direct the efforts of research departments to basic and worthwhile projects, would contribute to the development of an appreciation of research by association officials, and would enable research directors to obtain the backing of association managers and officials.
6. Responsibilities of managers of associations and directors of research should be clear cut and definite. (See pp. 52 - 55.) In addition to being responsible for the selection of properly

trained and qualified research directors, management can contribute to the performance of research personnel by developing and demonstrating a research attitude and by permitting participation of research personnel in policy determining discussions. Directors of research must be professionally alert and at all times keep abreast of newest developments in their line of work and the nature of problems confronting associations.

7. It has been suggested that emphasis in research should be directed toward practical and applied investigations that seek specific answers to problems facing purchasing associations. In this connection, however, a word of caution seems in order. To stress the practical aspects of investigational work is not to encourage a non-scientific and non-professional approach to problems. Neither should it be used as an excuse for justifying an inclination to shirk digging deeply into problems. The very nature of many problems will permit neither simple procedures nor simple answers as best guides for assisting associations in their efforts to serve farmers.
8. A basic consideration for purchasing associations is that of maintaining objectivity in research. If research departments are to render maximum service for farmers it is essential that at all times they be given complete freedom to investigate all aspects of basic operating problems. This calls for putting member interests above possible personal interests of management and officials and for unquestionable integrity on the part of research workers. It is only as research personnel throw off the shackles of a "yes-man" attitude with regard to pet ideas within an association that research can become a justifiable function of purchasing cooperatives. The controversial nature of some of the problems relating to policy that confront purchasing associations suggests the desirability of utilizing the services of State and Federal research agencies to consider such investigations. (See pp. 62 - 64.)
9. It has been indicated that associations would benefit by having research departments make written presentations of all investigations undertaken. (See pp. 59 - 62.) Such a practice prevents misunderstanding and contributes to high caliber work on the part of research personnel. Associations in general and research personnel in particular would benefit from placing stress on the presentation for publication in professional journals of basic studies that have general application.

RESEARCH APPLIED TO EDUCATION

Research techniques also offer possibilities for assisting associations in establishing effective educational programs. (See pp. 65 - 69.)

Some of the ways in which research techniques may be used by associations to help establish effective educational programs include:

1. Research, through a consideration of such matters as patronage desires, needs, and attitudes can be helpful in indicating the nature of problems that confront associations in the development of educational programs.
2. Research may be used to show how the content of educational programs can be broadened to appeal more effectively to patrons, employees, and the general public. It also may be used to determine the use an association can make of personnel of other regional purchasing associations, agricultural colleges, and agencies of the Federal Government. Such a broadening of the scope of educational activities would help associations avoid the limiting influence of "living within themselves" and would contribute to a better balanced educational program.
3. Purchasing associations would benefit from employing research techniques in developing public relations programs designed to acquaint the general public with salient features of cooperation. At present, too much emphasis has been placed on negative educational programs which are destructive in nature and which do not permit purchasing associations to put their best foot forward in acquainting the public with general operating performance.
4. Research should be used to help associations evaluate the effectiveness of house organs and to determine if they enable associations to present information in a desirable and appropriate manner.

The preceding observations serve to indicate that officials of farmers regional purchasing associations have every reason for agreeing with a statement of the National Resources Planning Board:

"Vital to our welfare, as a national resource, are research and the researcher. The search for truth in fact and in relationship, and the application of discoveries to our daily life are the very essence of progress...."

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